

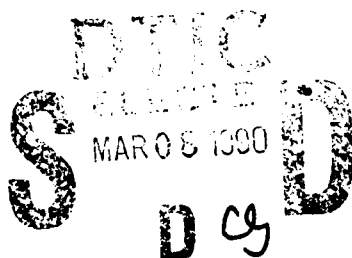
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ARMY FACILITIES MANAGEMENT
A New Strategy for a New Environment

Report AR902R1



January 1990

Trevor L. Neve
Jeffrey Hawkins

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<p>The Army's standard organization and standard approach to managing its facilities are not appropriate. At military installations, the missions differ, the sizes and ages of the facilities differ, the amounts of contracted services differ, and the management styles and local work forces differ. These differences require that each Directorate of Engineering and Housing (DEH) be free to adopt organizational arrangements and operating procedures suited to the conditions at its particular installation. This decentralization of responsibility and authority has increased management effectiveness in the private sector and the DoD.</p> <p>Army's regulations and guidance governing facilities management are not in harmony with the DoD's general policy of decentralizing as much responsibility and authority as possible. These publications are unresponsive to the DEHs' diverse needs and hence are not being heeded by the DEHs. A reorientation of those publications is needed to overcome the deficiencies.</p> <p>At the same time, the DEHs still want information and general guidance as they determine the best organizations and procedures for their circumstances. The U.S. Army Engineering and Housing Support Center (USAEHSC) is the primary sponsor for Army facilities management policy and should provide the information and guidance the DEHs want. With the revision of the publications, USAEHSC should take the opportunity to articulate clearly overall Army policy and goals, while leaving the DEHs the autonomy and flexibility to structure themselves and operate in ways appropriate to local circumstances.</p>					
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If the DEHs are to be given the authority to adopt nonuniform approaches – which most of them have already taken – they must be held accountable for attaining the objectives defined by USAEHSC. Feedback regarding this accountability should come from USAEHSC, Inspector General, and major command site visits. No quantitative measures are available for determining performance and for making comparisons among DEHs at various installations; however, even the private sector has thus far failed to develop such measures, and they will become even less applicable as DEHs continue to diversify.

Quantitative measures, on the other hand, are extremely useful for individual installations. They can and should be developed and used to compare current and previous performance, to compare different segments of an installation, to detect problems, and to help in long-term planning.

Finally, a measure of performance recognized in the private sector should be no less recognized by the Army's DEHs. It is customer satisfaction. The provision of excellent service to DEH customers should be a goal for all DEHs. Emphasizing this area can be the best way to support the installation's mission and to improve the entire facilities management process.

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Executive Summary

ARMY FACILITIES MANAGEMENT

A New Strategy for a New Environment

The Army's standard organization and standard approach to managing its facilities are not appropriate. At military installations, the missions differ, the sizes and ages of the facilities differ, the amounts of contracted services differ, and the management styles and local work forces differ. These differences require that each Directorate of Engineering and Housing (DEH) be free to adopt organizational arrangements and operating procedures suited to the conditions at its particular installation. This decentralization of responsibility and authority has increased management effectiveness in the private sector and the DoD.

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CHAPTER 1

BACKGROUND

Senior management in both the public and private sectors is beginning to realize the importance of a relatively new discipline: facilities management (FM). FM is more than simply the construction, maintenance, and repair of an organization's buildings and other infrastructure. It includes a whole range of management decisions such as in-house versus contracted work forces, leasing versus construction, and the cost of quality facilities versus their impact on an organization's morale and effectiveness. In this report, we explore the Army's FM procedures, organizational structure, and work flow and compare them to those of the private sector and the other Services. We then recommend changes to Army FM to effect improvements.

The Army's FM programs consist of real property maintenance activity (RPMA); military construction, Army (MCA); operations and maintenance, Army (OMA); Army Family Housing (AFH); and other installation support activities. At Army installations, the Directorates of Engineering and Housing (DEHs) are responsible for effective and efficient management of FM resources. These resources are applied to the building, repair, and maintenance of operational facilities, administrative buildings, dormitories, houses, hospitals, parks, recreational facilities, utilities, roads, and all the other facilities found in a small town. The DEHs' advocate for these matters is the U.S. Army Engineering and Housing Support Center (USAEHSC).

DEH resource management personnel rely on Department of the Army Pamphlet (DA Pam) 420-6, *Facilities Engineering Resources Management*, and DA Pam 420-8, *Facilities Engineering Management Handbook*, for procedural guidance to manage RPMA and AFH resources. These pamphlets include methods for identifying, planning, and processing work and procedures for committing resources to the DEH workload. DA Pam 420-6, last revised in 1978, is undergoing revision and does not yet reflect current procedures used at Army installations nor

those recommended by USAEHSC. DA Pam 420-8 is dated September 1978 and is also undergoing revision.

Army Regulation (AR) 5-3, *Standard Installation Organization*, directs that all Army installations, including the DEH, implement standard installation organizations (SIOs). An organization chart of the DEH SIO is presented in Appendix A. This policy does not follow the prevailing Army trend toward decentralized installation management prescribed by the Army Communities of Excellence Program, nor does it reflect prevailing private-sector management theory and practice.

Army Regulation 420-10, *Management of Installation Directorates of Engineering and Housing*, sets the responsibilities, organizations, functions, and personnel for DEHs. Much of the regulation is concerned with implementing the SIO portion of AR 5-3 that applies to DEHs.

In our comparison of DEH FM with that of the other Services and the private sector, we determined that quantitative comparisons of various FM organizations are difficult. (This difficulty is discussed later in this report.) The study therefore concentrates on identifying those procedural and organizational practices that are generally accepted as working well. It also relies on applicable management science and organizational theory. The practices discussed include decentralization of operational authority, accountability of the field to the headquarters, and a renewed emphasis on customer service.

To gain a perspective on current DEH procedures, we visited a number of Army installations that have undergone commercial activity (CA) reviews. Under such a review, a DEH develops a new organization, after a thorough management study, based on its most efficient organization (MEO). It then competes with bids from private contractors to determine whether the execution functions of the DEH remain in house or are contracted out. Since these DEHs have already conducted extensive organizational studies, an efficient and productive organization should already be established. We also visited Army installations that have already contracted out their operations to observe the contractors' organizations and procedures.

Organization design theory ties our findings from the field study to the conclusions. We supplemented the Logistics Management Institute's (LMI's) organizational expertise with organizational and management textbooks, journal

articles, interviews with experts in the field, and other sources. Appendix B presents the organizational theory findings relevant to this study and it should be reviewed before proceeding with the following chapters.

The remainder of this report presents findings from visits to Army installations, Army major commands (MACOMs), the Air Force, the Navy, and private industry FM professional societies and organizations. Conclusions, based on the findings, lead to recommendations presented in Chapter 6 for procedural and organizational policy changes that the Army should implement.

CHAPTER 2

FACILITIES MANAGEMENT IN TODAY'S ARMY

In this chapter, we present trends and practices adopted by DEHs and also those organizational concepts that deviate from the SIO prescribed by AR 5-3 that are generally working well. Appendix C presents detailed findings from the installation DEH visits.

During the course of the study we visited 12 Army installations from three MACOMs [U.S. Army Materiel Command (AMC), U.S. Army Training and Doctrine Command, and U.S. Army Forces Command] and also visited the headquarters of the last two MACOMs. We conducted over 90 interviews with various DEH and MACOM personnel including directors, deputy directors, division chiefs, branch chiefs, and individual members. Interview questions focused on resource management procedures and DEH organizational dynamics. Most DEHs visited were organized in their MEOs.

When a DEH organizes into an MEO, it usually cuts its manpower by as much as 25 to 40 percent. It is sometimes difficult to discern whether changes in a DEH's efficiency are mainly due to its MEO changes or to the reductions in its manning. In these cases, we were forced to rely on experienced DEH managers' perceptions of the organization and management practices before and after the changes. The MEO DEHs we visited consider their staffing inadequate and it is apparent that many DEHs, as well as contractors, are "buying in" to the CA competition.

The people at most DEHs we visited said that Inspector General (IG) site inspections are infrequent and of little value to the DEH. When IG personnel did inspect, they focused on prescribed procedures and not on results. For instance, the IG would check for resource management plan preparation compliance while ignoring the fact that the document was seldom used.

DEH ORGANIZATIONAL STRATEGIES

Each DEH we visited is unique in its organizational structure. There is little regard for AR 5-3 and the SIO. Each DEH has modified its structure to best meet

local conditions and the challenges of day-to-day survival. All DEHs want maximum organizational flexibility and agree that the SIO does not recognize the variety of considerations that determine optimum organization structure for each installation. These considerations include:

- The installation's and DEH's missions
- Organizational identity, philosophy, and size of the DEH
- Personnel/personalities assigned to the DEH
- Size, age, and complexity of the facilities
- The inherent or real cost for facilities that fail to support their missions.

In real world operations, each of these factors influences how an organization should be structured.

Often, the reason for changing the DEH organizational structure is to affect pay grades for division or branch chiefs. Although this practice may at first seem undesirable, it is often adopted so that vital DEH personnel will not be lost to other jobs. Many feel that the quality of the people assigned to the DEH is far more important than the structure or organizational dynamics in determining performance. In other words, the philosophy prevails that good people can make any organization work, while the wrong people cannot be made to work effectively no matter what the organization.

As a result of these deviations from the SIO, much of the guidance in AR 5-3 and DA Pam 420-6 is not followed and is seldom used. This is not to say that DEHs are unfamiliar with the content. Rather, it is that the procedures prescribed in the documents are no longer applicable to their current organizational structures. The DEHs have simply adopted new or modified current procedures accommodating their organizational needs.

Although DEH personnel want organizational flexibility, it is evident that they still need and want at least limited guidance from their MACOMs and the Department of the Army (DA). They want some form of policy and guidance to safeguard them from outside influences. In other words, DEH personnel want some procedural policy and a general organizational framework (or model) on which to

base their structures, but they still need maximum organizational flexibility in order to react to the particular conditions and problems at their installations.

The people at DEHs are concerned that they have no single source of guidance for DEH procedural or organizational deviations nor do they have any means of gaining knowledge from the experience of other DEHs. In some instances they are not even familiar with USAEHSC or the services it can provide them.

Most DEHs we visited had undergone CA reviews or were at least anticipating one. Each DEH recognizes the need to reorganize to keep the RPMA function in house. The basic philosophy is "adapt or lose." The DEHs that kept the RPMA function in house experienced a severe reduction in force (RIF) while simultaneously reorganizing the remaining personnel to realize the benefits of better organizational dynamics. These DEHs provided us a number of unique organizational structures to examine. Even those that had lost their in-house work forces to a CA contractor still recognized the need to reorganize the remaining functions to best manage their personnel and operations. These cases also proved valuable since the changes were made in the absence of CA review pressures and were considered simply good changes. As of October 1989, 26 percent of all DEHs are organized in their MEOs; another 28 percent are operating under CA contracts.

DEH ORGANIZATIONAL TRENDS

The SIO defined by AR 5-3 (see Appendix A) is not used in its purest form by any installations we visited. However, using it as the baseline for DEH structure, we can compare it to the organizations we observed that were generally perceived as working well. With few exceptions, DEHs made the organizational changes without notification or approval from MACOMs (required by AR 5-3). In this section, we include those organizational deviations that generally worked well. We will avoid references to "divisions" and "branches" since we observed the organizational elements at several levels. Instead, we refer to them as organizational "functions" or "elements."

Operations and Maintenance

The consolidation of the buildings and grounds and utilities components into a combined operations and maintenance (O&M) function is the most notable deviation we observed. Over 80 percent of the DEHs we visited had made the change. In

addition to merging the shops, it generally includes a reorganization of some functional shops into project shops. In other words, separate elements within the O&M function are established to be responsible for preventive maintenance, service order (SO) work, and individual job order (IJO) work. Fort Ord, Fort Carson, and Fort Bragg are examples of DEHs that have established combined O&M functions and have also reorganized, to some extent, into project shops. For instance, SO work at Fort Ord is done by multiskilled or general craftsmen employing the one-person, one-truck concept. The service trucks are radio dispatched by service order clerks on a priority basis. The workers' productivity has improved dramatically. Fort Carson used project organization in a combined O&M function before the function was contracted. The installation reported that productivity increased 20 to 30 percent and that SO backlogs plummeted. One of the advantages of this concept is that "geographic ownership" or "zoning" systems can also be implemented. Geographic ownership is thought to instill pride in the work and to foster familiarity with the buildings and customers in the zones assigned to the craftsmen.

Those opposed to the SO shop (or project) concept mentioned difficulty in obtaining the right type of personnel, problems with the Civilian Personnel Office, and problems associated with cross-training. They believe the concept may be regionally dependent.

At some installations, like Fort Knox, a matrix management concept overlays the traditional functional structure in the operating shops so that trade personnel can be assigned to IJO project teams. Others within the O&M shop remain functionally organized for accomplishing specialized utility, mechanical, or structural work. The project teams remain together (although personnel are assigned and reassigned as their particular responsibilities are completed) until the project is finished or other priorities take over.

The primary reason DEHs give for consolidating into an O&M-type structure is so that they could effectively compete with private-sector contractors during CA reviews. They felt that if they were competing with the private sector, it made sense to organize in a similar manner, since it is generally the in-house shops that sacrifice the most during CA reviews and MEOs. The DEHs found that reorganizing into an O&M function eliminated redundant positions, cut superfluous supervisors/foremen, and generally permitted more extensive RIFs while maintaining the ability to

accomplish the same level of service. Many DEHs sought guidance from other installations and/or MACOMs before implementing the change.

The biggest problem described by DEHs like Fort Knox, Fort Bragg, and Picatinny Arsenal with regard to the O&M organization concept was that the O&M chief has too much responsibility and too many immediate subordinates. They concluded that restructuring must accompany the consolidation to avoid span-of-control problems. Also needed is an O&M chief with more management skills than technical skills. The increased span of control leaves little time for the chief to help or train personnel in technical matters.

At Fort Ord, Fort Sill, Fort Bragg, and White Sands Missile Range, the reorganization to the O&M concept also moved the planners/estimators and schedulers [located in engineer resources management (ERM), according to the SIO] into the O&M function. The O&M chiefs defend the move, saying it improves overall DEH productivity by putting those personnel under a single boss, avoiding constant bickering between the two components. The ERM chiefs insist that this change puts the "fox in charge of the hen coop" and results in a loss of accountability for the in-house labor force.

Budgeting

The budget function also experiences organizational changes, but they are frequently made without CA review pressures. AR 5-3 establishes decentralized budgeting for ERM and Housing, but most DEHs visited (67 percent) have discovered that the overall manpower assigned to budgeting can be reduced by consolidating these people into a single budget function and using the saved positions at more critical slots within the DEH. At Fort Sill, for instance, the number of budget clerks handling the AFH budget was reduced from four to one. Another advantage realized by consolidating the budget personnel is that they can be cross-trained in all DEH budgeting areas. This is extremely helpful to the DEH, particularly when budgeting employees resign or are absent.

The SIO in AR 5-3 places the DEH budget function under the ERM chief, thus imposing an additional layer of management between the budgeting chief and the director. This arrangement may prove awkward for the director who desires strict control over or needs direct access to crucial DEH-wide budget information. As a result, the budgeting chiefs under the ERM function tend to report "unofficially" to

the director. To remedy this chain-of-command anomaly, DEHs at Fort Leonard Wood, White Sands Missile Range, and Fort Bragg, to name a few, have established consolidated budgeting offices or divisions (depending on the size of the function) that report directly to the director, thus allowing budgeting information to flow directly between them. In addition, it is contended that the budget function must be the DEH's "honest broker," which is not possible when the function is located under an ERM chief. It is also felt that a DEH budget division or office maintains a better relationship with the Directorate of Resource Management and that, therefore, the DEH may be in a better position to compete for installation funds.

Most Housing chiefs resist their loss of budgeting control. The most frequent assertion is that since they are accountable for all Housing funds, they should also have authority over them. Responsibility is prescribed by AR 210-50, *Family Housing Management*. Housing chiefs who have already lost their budgeting control concede that they are nevertheless making the system work, by tying into the DEH budgeting computer system and/or demanding weekly Housing funding reports. Most consolidated DEH budget functions have assigned housing financial responsibilities to a single individual. That person, however, typically remains in the consolidated budget office area rather than being located at the Housing offices.

Master Planning and Real Property Combination

One of the DEH's major responsibilities is preparation of DD Form 1391, *Military Construction Project Data*, which requires a great deal of coordination between the master planning and real property functions. To prepare the forms effectively, facility category codes, land use information, and lease terminations information from real property records are needed. As a result, half of the DEHs visited have combined the master planning and real property functions. (The real property function falls under the Management Engineering and Systems Branch in the SIO.) The organizational location of the consolidated function varies. Some keep the function under Engineering, Plans, and Services (EP&S), while others detach it from the EP&S group and consolidate it with other functions (e.g., environmental, energy, or mobilization planning) into a "planning" or other organizational element.

The DEHs feel that the advantages of combining master planning and real property far exceed the drawbacks of relocating the component functions from their previous groups. Surprisingly, ERM and EP&S chiefs report little or no loss in the

effectiveness of their functions. Where the DEH has made this organizational change, most agree it has created a win-win situation. At Fort Riley, however, master planning and real property have not been combined, because it is felt that there is not enough DD Form 1391 work to justify combining the functions.

Job-Order Contract Element

Ever since the Army adopted the use of job-order contracts (JOCs), there has been much discussion as to how the DEH will administer them. It is generally accepted that a separate organizational element should be created in the DEH solely for the purpose of executing JOC-related work. Army guidance dictates that the "JOC element" be comprised of existing DEH personnel only; no new DEH personnel will be made available because of a JOC.

Because of the nature of the personnel normally assigned to a JOC element, two potential organizational locations within the DEH emerge: ERM and EP&S functions. After several site visits, it became apparent that the preferred location for a JOC element is under the EP&S function, primarily because of the type of work and size of delivery orders accomplished by the JOC. For the most part, JOCs are expected to accomplish the type of work that would normally be contracted out and in the \$35,000-to-\$75,000 range. Most DEHs agree that EP&S is most familiar with this type of work and therefore is the logical organizational location for a JOC element. Additionally, it should be noted that, because of the CA programs, it is important to preclude any mix in scope between the CA contract and JOC. By scoping out only the types of projects that are normally contracted, the DEH can avoid any potential legal consequences caused by performing in-house-type projects under the JOC.

Contract Inspection Function

The DEH contract inspection function inspects construction and some service contracts. It is normally located under the EP&S chief. Other service contracts may be administered in operational shops [e.g., O&M, Buildings and Grounds (B&G), and Utilities]. Most DEHs organized in their MEO recognize the importance of consolidating all inspection functions into a single organizational element to reduce the number of DEH personnel performing inspection and improve management efficiency. They also recognize that service and construction inspections should not be performed by the same people, since they require very different skills; service

inspection is essentially a quality control function while construction inspection requires more facility engineering and construction knowledge. As a result, the two are generally separated under a broad "contract inspection" function into independent components: service contract inspection and construction contract inspection. The consolidated contract inspection function is generally located under the EP&S chief to take advantage of his contracting experience. Those installations that have made the change all agree that this change makes sense and works well.

Because of the increased workload caused by administering CA contracts, installations that have contracted out DEH operations generally elevate the contract inspection function to a position reporting to the director (in accordance with AR 5-3). Since the CA contract is inherently a service contract, this new organizational element also tends to divide responsibilities along the service and construction contract lines.

Environmental Function

One of the most sensitive DEH areas today is the environmental function. According to the SIO, the environmental function should exist as a separate office reporting directly to the director, unless environmental concerns are limited or have been contracted out. Otherwise, the function should be part of the EP&S responsibilities. During our visits, we found the DEH environmental function located in a variety of organizational locations (including separate divisions); combined with master planning/real property; handled as a staff office function; and existing as a separate division combined with the energy activity. It appears that the only logic tied to its organizational location is that it is placed according to its mission requirements and/or level of importance at that particular installation. Where it is perceived as important, it is placed under direct supervision of the director. Where it is of less importance, it is combined with other functions to reduce the director's span of control.

Supply Function

According to the SIO, the DEH supply function should be a division-level position reporting to the director. During our site visits, we found a number of departures from the SIO in this area. For example, at Fort Leonard Wood the supply function was moved under the ERM chief – even before RPMA functions were contracted out (because of CA review), thus reducing Supply's responsibilities. The

DEH felt that supplies are DEH "resources" and therefore belong under ERM. Supply was also moved under the ERM chief at another installation, but in this case it was simply to effect pay grade changes and reduce the director's span of control.

At Fort Benning, DEH considered placing the supply function under the O&M chief to preclude the constant problems arising with the material coordinators and scheduler. However, the concept has not been implemented, because of concern over creating too large a span of control for the O&M chief. Fort Bragg solved this very same problem by moving the material coordinators into the Supply function and found that overall efficiency improved.

At AMC installations, the DEH supply function is included in the installation's consolidated supply located at the Directorate of Logistics. As a result, DEHs have less control of their materials and supplies, and consequently responsiveness has suffered. Interestingly, at Fort Bragg the consolidated installation supply concept was tested with similar results. Like the AMC installations, it experienced longer lead times for supplies and materials. But the fault was not caused by a less responsive supply function. Actually, as a result of moving the DEH supply function to another directorate, the DEH (ERM) was forced to impose new internal control procedures to monitor it. And it was the new procedures themselves that caused the additional delays. Supply was eventually moved back to the DEH and made a division reporting to the director, and responsiveness returned to normal.

The supply function within the DEH is oftentimes overlooked as a place for organizational improvement. However, at several installations the DEH has made some changes that improved its performance and therefore the overall productivity of the DEH.

Typically, Supply is perceived as having a slow response time for material orders. Most often the supply function's slow response time can be traced to equally slow response caused by an overburdened Directorate of Contracting (DOC). DOC does not often assign personnel to administer DEH supply items specifically. At Fort Sill and Fort Bragg, however, this problem has been overcome by assigning DOC personnel to the DEH supply function and physically locating them in the DEH supply area. This change has greatly improved the DOC/DEH relationship and has increased the overall productivity of the DEH at these installations.

DEH MANAGEMENT PRACTICES

Work Duplication

Although nearly all DEHs admitted to disturbing cases of work duplication through poor scheduling (e.g., paving roadways only to have a utility project destroy the newly paved road and pave the road again), they felt that such mistakes were few and far between. Most DEHs agree that such duplicative work is not a significant problem. It is easy to see why mistakes like these are usually remembered and become the subject of frequent reports. No DEH can guarantee that work duplication will never happen, but several installations have adopted one of two methods to reduce the likelihood of its happening.

First, some DEHs have adopted work management procedural changes to avoid duplicative work. For example, at Fort Sill and Fort Riley the chief of the EP&S function attends the weekly work scheduling meetings (in ERM) to ensure that there is no duplication between in-house and contracted work. At Picatinny Arsenal all projects (SO and IJO) are grouped by building location, and it is therefore easier to catch duplicative projects. At Fort Ord, a Planning Division has been established to coordinate and approve all current and future construction and repair projects for the entire installation. In effect the division acts as a clearing-house for all in-house and contracted new construction and minor repair projects (SOs, IJOs, MCA, OMA, and groups outside the DEH) and is therefore able to oversee all new projects and effectively preclude duplication. Other DEHs found organizational changes effective for solving the problem. Examples include combining the ERM and EP&S functions, or consolidating B&G and Utilities into a single O&M function, or placing the planners/estimators in the operating functions such as O&M. Although the procedural and organizational changes at these installations effectively reduce duplicative work before it is actually accomplished, they do not avoid the unproductive estimating, design, and work coordination effort that precedes it.

Second, some installations have adopted automated work management systems. For example, Picatinny Arsenal has developed a work management package in house, while others have used standard Army systems such as the integrated facilities data entry process and the integrated facilities system, mini/micro version (IFS-M) to reduce duplicative work. When these systems are operated by properly trained work receptionists, they can be used to check for work

duplication as the orders are actually received, thus avoiding the additional burden of having unproductive estimating and design work performed by the DEH staff. For instance, the IFS-M checks all incoming orders against those already in the system (categorized by type of facility and work) and flags duplicate SOs. Future development of the system will include checks for duplication between all other work orders, OMA projects, and MCA projects, making it an even more powerful tool.

Long-Range Planning

Army policy is to place DEH long-range planning in two documents – the installation master plan and the resource management plan (RMP).

The installation master plan is usually simply called "the master plan," and it is directed by AR 210-20, *Master Planning for Army Installations*. This regulation gives installation commanders "total responsibility" for the master plan and requires a planning horizon of approximately 20 years. The commander or a designated representative must chair a master planning board to formulate and maintain the master plan. The plan "goes beyond the placing of buildings or maintaining existing condition maps"; it responds to documents and systems such as the Force Structure Components System, the Army Modernization Information Memoranda, and the Army Stationing and Installation Plan.

AR 210-20 notwithstanding, the master plan is usually regarded as a DEH responsibility since the master planner is a DEH asset. The broad planning requirements are usually overlooked, and the plan is used mainly as a DEH siting document for new construction. Many installations do not even include all of their new construction sitings, and few have a 20-year planning horizon. The master planner at one installation, for instance, includes only MCA projects in the master plan and even excludes MCA for the Army Reserves. At another installation, only MCA projects and facility use issues find their way into the master plan. DA Pam 420-8, *Facilities Engineering Management Handbook*, needs updating since its chapter on master planning appears to run counter to the philosophy of AR 210-20.

Although the master plan may not contain all of the information AR 210-20 calls for, the information is still available in the source documents. These include MCA and OMA project lists, the minutes of various planning and advisory boards,

and other installation plans. Day-to-day management is conducted with these source documents rather than the master plan.

Unlike the master plan, the RMP is fully a DEH responsibility. A long-range plan devoted to FM, it is covered at length in DA Pam 420-6. Only a third of the installations we visited have an RMP, and few of those installations actually use it. Instead, DEH personnel use source documents such as project priority lists, manning documents, design priority lists, and real property records for day-to-day management. They regard an RMP as a duplication of existing documents. They also see an RMP as difficult to keep current since information in the source documents often changes weekly. Consequently, those DEHs that produce an RMP to meet a MACOM requirement based on DA Pam 420-6 simply produce it and file it. It is not used as a management tool. Moreover, the RMPs that are produced are often produced by the budget function, as is done at Fort Leonard Wood. There is then a tendency for the document to take more of a budgeting than a planning and programming orientation.

Installation Planning Board

The Installation Planning Board (IPB) is a committee of senior installation management charged with the oversight of the installation's FM. The extent of IPB involvement in DEH business varies widely. At Fort Carson, the IPB meets semiannually and handles only MCA. At Fort Riley, it meets annually and handles MCA and siting issues. The DEH managers at these installations feel that OMA and IJO work is better prioritized by the DEH on the basis of facility needs. At Fort Sill, the IPB meets annually and prioritizes MCA, OMA minor construction, maintenance and repair projects, and even some IJOs. The feeling throughout the DEH is that the installation is not served well by the IPB's priorities. High-visibility, short-term projects are given priority over vital infrastructure maintenance and repair needs. At the other extreme, upon the recommendation of its director, White Sands Missile Range has eliminated the IPB altogether. The director believes that the IPB members do not possess the background or inclination to give infrastructure needs enough priority to prevent systems failures.

Performance Criteria

Most installations have abandoned or have not established standard quantitative measures for evaluating DEH performance or productivity except for

the narrowly defined engineering performance standards. Although many DEHs appreciate the need for a review and analysis program based on such measures, they claim that manpower shortages prevent establishing or continuing one. Responsibility generally resides in an industrial engineering (IE) branch. Unfortunately, IE functions are commonly eliminated during RIFs and CA reviews, in favor of moving the positions to more critical DEH functions. As a result, the DEHs tend to assess their performance qualitatively on the basis of how well they serve their customers' needs. It is generally the DEH deputy director as well as the director who monitors the DEH's performance from customers' feedback, where fewer complaints are equated with good performance.

However, some installations such as Fort Ord do have successful review and analysis programs. They have made a commitment to the programs and have placed the responsibility with the branch and division chiefs, not with the IE function. It is every bit as much a part of their day-to-day responsibilities as supervising their personnel. Upper DEH management uses the review and analysis information to measure current trends and improve DEH performance and productivity where necessary.

Customer Service Programs

Few DEHs have initiated meaningful customer service programs at their installations. Fort Leonard Wood has established a phone-in customer service desk in the work reception area. The customer service desk handles customer complaints and does whatever is necessary to resolve problems. This simple process, in turn, embellishes the DEH's "we care" image so vital to its mission.

Most other installations we visited were much less formal in their approach to customer service. They had no formal program, did not monitor SO feedback, did not survey IJO customers, and did not close the loop on customer complaints. The process was very casual, and action was taken only for the most serious complaints (or loudest complainers).

CHAPTER 3

FACILITIES MANAGEMENT IN THE PRIVATE SECTOR

Private-sector FM organizations offer a unique opportunity to look at procedures and organizational structures that have evolved unhampered by government or Army directives. FM's institutional history in the private sector is less than 10 years old. Two professional organizations have recently been organized to help cultivate this fertile field. The International Facility Management Association (IFMA) has over 71 corporate and 7,600 individual FM members. The Association for Physical Plant Administrators (APPA) has over 1,400 college and university FM members. The findings in this chapter are based on interviews with IFMA, APPA, private-sector, college, and university FM organizations, and from literature and surveys supported by IFMA and APPA.

The Library of Congress defines FM as the "practice of coordinating the workplace with the people and work of the organization, integrating the principles of business administration, architecture, and behavioral and engineering sciences." This definition of facility management is certainly appropriate for Army DEHs.

ARMY FACILITIES MANAGEMENT VERSUS PRIVATE SECTOR

Private-sector FM organizations are similar to the Army's DEHs in both the functions they provide and the salaries they pay FM managers. There are some private-sector companies that are comparable to the Army's installations, and we would therefore expect the facility management groups to follow. We focused our attention on such companies in our private-sector analysis.

Private-sector FM organizations typically fall into one of three organizational models. The one that comes closest to the Army's DEH is one with the following attributes:

- Real property is owned, not leased, requiring an in-house maintenance force and facility, space, and master planning capabilities.
- Facilities managed are varied and complex, putting more emphasis on in-house facility engineering, construction, and O&M knowledge. Since

specialized staffs are required, much of the architect-engineer (A-E) and construction inspection functions are performed in-house.

- The overall size of facilities managed is more than 2,000,000 square feet, requiring larger, functionally organized FM staffs. Therefore, maintenance and minor construction projects may be performed in-house, by contract, or more typically by both.
- As the size and complexity of the facilities managed increase, the more efficient it becomes to keep FM staffs in-house and the more specialized the functions become. Figure 3-1 shows the FM organizational model outlined by the above criteria.

In addition to private-sector companies, we also looked at colleges and universities and their FM organizations (sponsored by APPA) to draw valid comparison with Army DEHs. In fact, we met with members of the APPA organization to get an industry-wide perspective of this area and also interviewed local university facility managers, such as those at the Massachusetts Institute of Technology (MIT) to get the field perspective. The MIT facility manager has strong ties with IFMA and APPA and hosts numerous conferences on management practices in the FM field and was therefore able to provide valuable insight in this area.

College and university FM organizations offer valid comparisons to the Army's DEH since they possess the same attributes mentioned above in the FM organization model. They are very similar to Army installations because both contain a variety of office, research, recreational, and dormitory facilities as well as the same type of utility systems, paved roads, and grounds/campus environment.

On the issue of salaries, Table 3-1 shows that FM salaries in the Federal Government are competitive with those in the private sector.

FACILITIES MANAGEMENT TRENDS

Performance Criteria

Currently, private-sector FM professional organizations like IFMA and APPA are searching for usable quantitative performance criteria to aid their respective memberships in the day-to-day FM mission. Examples of such criteria may include occupancy expenses, work-order response times, work completion times, and "churn rates" which are the frequencies with which facilities change use and occupants. These criteria are intended to be benchmarks for facility managers to compare their

In-house functions

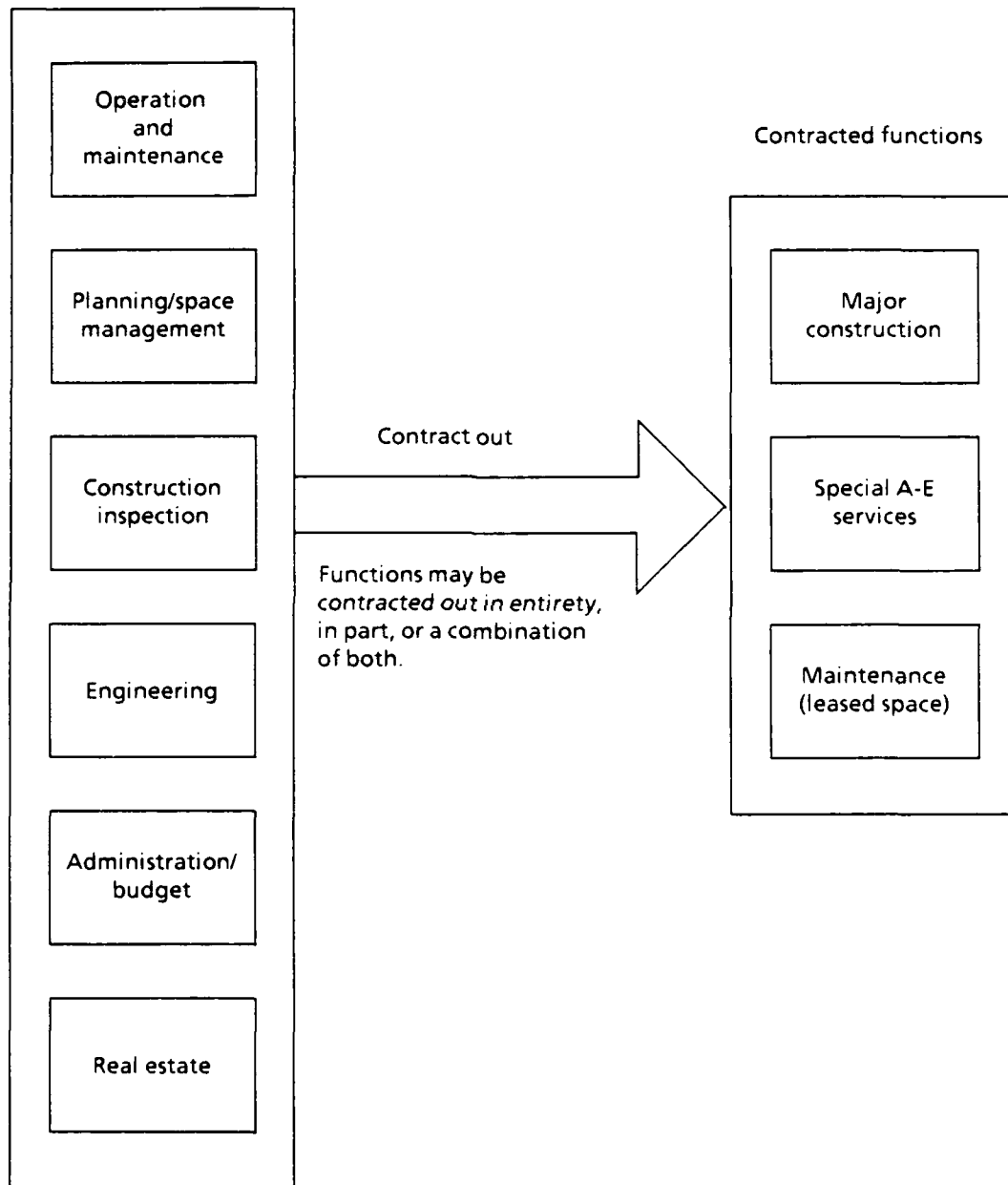


FIG. 3-1. PRIVATE-SECTOR FM ORGANIZATION

TABLE 3-1
COMPARISON OF FM SALARIES

Sector	Annual salary range (\$000) ^a	
	Division chief	Branch chief
Federal Government ^b	41.1 – 53.5	34.6 – 45.0
Private sector ^c	40.2 – 58.8	34.5 – 49.5

Note: Salaries shown do not include benefits.

Sources: Federal Government – From 1989 Federal pay scale for GS-12 and GS-13, steps 1 to 10; Private sector – The International FM Association, Research Report #5, 1989

FM organizations with others contained in the database; they are not intended for ranking FM organizations.

Many private-sector FM organizations establish their own criteria for monitoring the effectiveness of their organizations over time. The most prevalent measure of success is simply customer satisfaction. This is true whether the customers are the general public or other functions in the same organization. "Without it, there is no success." We heard throughout our interviews that the most important measure of success in an FM organization is responsive and excellent service. The most effective way to measure this success is by some form of customer or job completion survey. The survey may either be formal or informal and serves two purposes. First, it offers the FM group real-time feedback on its performance effectiveness (i.e., the customers' opinion of responsiveness). Secondly, the act of surveying the customers helps to foster the idea that the FM group actually cares what the customers think. Both lead to customer satisfaction.

Long-Range Facility Planning

Long-range facility planning beyond 1 or 2 years is the exception rather than the rule in private-sector FM organizations. APPA claims that planning beyond this time frame is not important because colleges and universities do not change significantly from year to year. However, IFMA has a broader range of membership and it is encouraging its members to adopt more strategic long-range planning. The private sector uses facility planning to integrate and establish a common direction for

the FM organization. The act of planning is most important. The plan itself is minimally important and may be obsolete the day it is published, as can be expected when the FM is in a dynamic environment. Private-sector planning boards at the vice president level meet frequently to keep the FM organization on track.

ORGANIZATIONAL STRATEGIES

The belief throughout the private sector (including APPA, IFMA, and FM organizations) is that FM organizations must be structured to satisfy its organization's mission goals and objectives. Each FM organization is faced with different site-unique conditions that determine how it should be structured. The factors that influence how an FM organization should be structured include the following:

- The FM and parent company's missions
- Personnel assigned to the FM organization and their personalities
- The corporate and FM organizational philosophy or identity
- Whether facilities are primarily leased or owned
- Size, complexity, and variety of facilities managed
- Churn rate
- The risks and costs associated with facility failures. (In other words, should the FM group be organized to be very responsive and therefore preclude facility downtime, or is cost efficiency more important?)

There is a clear trend in the private-sector organizations to decentralize operations and decision authority. With decentralized organization, the corporate headquarters role becomes more advisory or consultative in nature within each function. In other words, the corporate budget staff advises decentralized budgeting functions, corporate engineers advise decentralized engineering functions, and so forth. In decentralized environments, corporate headquarters assert control over policies and objectives, maintain clear and concise rules, and demonstrate strong leadership when necessary. The FM organizations are held accountable for their own actions and performance when decision-making and operational responsibilities are decentralized.

ORGANIZATIONAL TRENDS

There are three private-sector organizational trends that differ markedly from the Army's SIO.

Budgeting

The budget function in private-sector FM organizations is typically a centralized yet separated function within a group that reports directly to the facilities manager. During periods of programming and budgeting, this function serves to integrate the entire FM organization by forcing the various departments to meet and express their concerns.

Industrial Engineering

Industrial engineering functions are typically performed by staff outside the FM organization. Since FM is generally an overhead function, the tendency is to try to keep the FM organization "lean and mean." Private industry believes there is not enough IE-type work in the FM organization to justify the personnel expense. Therefore, some of the functions that would be performed by an IE group are accomplished by department managers or supervisors.

Operations and Maintenance

Planning, estimating, and scheduling functions are generally performed by the O&M departments. In smaller FM organizations, the function may be part of a supervisor's responsibilities, whereas in larger ones a separate activity may be established — but it is still retained by the O&M department. This concept makes the O&M department accountable for completion of all in-house work performance.

The work reception function is often placed in the O&M department, where it is closer to the supervisors or foremen who actually schedule the work. This facilitates real-time scheduling of the projects.

CHAPTER 4

FACILITIES MANAGEMENT IN THE AIR FORCE AND NAVY

The FM missions in the Air Force and Navy are the same as those in the Army. They also have to comply with the same public laws, the Federal Acquisition Regulation, the DoD budgeting system, and civilian personnel policies. They also procure many of their supplies from the same Government agencies. Typical Air Force and Navy FM organization charts are set forth in Appendix A.

Air Force installations are generally considered to be maintained better than those of the other Services, and our observations agree with this perception. It is unclear whether this is due totally to better funding, or better management of funds, or whether it may be partially due to better FM organization and procedures.

FACILITIES MANAGEMENT IN THE AIR FORCE

In October 1988, the Air Force published a new FM regulation, Air Force Regulation (AFR) 85-2, *Operations Management*, which radically changed its approach to FM. Formerly, Air Force installations had the most standardized and centrally controlled FM organization of all the Services. The new regulation decentralizes FM authority and responsibility. This action was taken after a 4-year study called *Project Image*, which formed teams from installations, MACOMs, and other headquarters personnel to study FM problems and concerns. The overwhelming feedback from this study was that base civil engineers (BCEs) needed far more autonomy to adapt to local circumstances and requirements. This conclusion was reached even though Air Force installations are much more alike in organization, age, and mission than are Army installations. The results of the study were not surprising since many BCEs had been trying to change their organizations and procedures through the Model Installations Program. This program provides an avenue for installations to get exemptions from regulations and adopt their own procedures.

This concept of decentralization follows the Excellent Installations policy of Mr. Robert Stone, Deputy Assistant Secretary of Defense for Installations. The tenets of the decentralization are that the corporate headquarters should mandate

the organization's goals and objectives, let the local managers organize and adopt procedures to meet them, and then hold the local managers accountable for meeting them.

To implement its decentralization policy, the Air Force has put its FM goals and objectives in the new AFR 85-2. There are 34 of them, and they are brief. An example is, "Establish mechanisms for the customer to identify and process work requirements for approval or disapproval." The regulation also includes 21 other mandatory requirements levied by public law, procurement regulations, fire and safety policies, and other non-BCE publications. An example is, "Resources obtained from other than O&M funds (i.e., Military Family Housing, Nonappropriated Funds, etc.) will be properly accounted for and used in support of those areas." The regulation then gives BCEs examples of how to organize and proceed, but none of the guidance is mandatory. The BCEs are then held accountable through regular visits by the IG and headquarters staff.

Status of the New Policy

It is too early to measure the results of the new approach. However, there has been no rush by installations to make wholesale changes to the former, mandatory system. BCEs are taking their time to evaluate possible changes. There has been no known union resistance to the new policy, but concerns have been expressed outside of the FM community. These concerns are still being addressed.

Concerns of the Inspector General

The IG was concerned that evaluating performance of Air Force installations would now be very difficult without standard organizations and procedures. However, the IG has been advised that performance and effectiveness should be based on results, not procedures. This means a new approach for the IG. Rather than inspecting forms, files, and adherence to policies, the IG team will have to evaluate the effectiveness of the BCE's FM program by actually talking to customers and observing the facilities. This transition should succeed since one of the people most responsible for implementing the new FM policy has been transferred to the IG team.

Concerns of the Manpower Evaluation Team

The manpower evaluation team (MET) is responsible for measuring manpower requirements and approving manpower requests. The MET is concerned that the

manpower needed to run nonstandard BCE organizations will be difficult to assess. Therefore, the Air Force is studying the "Macro Manning" concept, whereby the MET will assess only total BCE manpower requirements at each installation. Each BCE would then have the authority to use that manpower as he or she sees fit. In the meantime, however, each BCE must negotiate with the MET before any organizational changes are possible.

Concerns Regarding Training

A BCE organization is usually about 50 percent military. There was concern that training these personnel would become difficult because they move frequently and will probably find a different organization and procedures at each assignment. It was decided, however, that this would affect very few personnel. The skills needed for carpenters, plumbers, and other craftsmen remain the same no matter how the shops are organized. The exception would be the specialty that is responsible for the administrative aspects of FM – work reception and scheduling. These procedures are likely to be different at each installation. It was decided to train these specialists in the objectives of work control and let them learn the specifics at each assignment.

Concerns of the Air Force Audit Agency

The Air Force Audit Agency is concerned that there may not be enough audit trails in the procedures adopted by some BCEs. Many of these audit trails are needed to meet legal and budgetary requirements. This question has not yet been resolved, but one possibility is to include the audit trails in the FM goals and objectives. Moreover, the BCE must still participate in the installation's automated accounting system in order to get funds, so many of the audit trails will remain in place anyway.

Implementation of Changes

There is little concern in the Air Force FM community that BCEs will implement sudden or arbitrary changes that will be detrimental to the mission. Although AFR 85-2 has left the BCEs free to pursue their own organizations and procedures, several checks and balances are left in the system. BCEs must sell changes that affect civilian manning to the civilian personnel office. Moreover, if the change might lead to an adverse civilian personnel action, civilian personnel office regulations require the BCE to notify its MACOM. As noted above, changes in

manning among the sections must be negotiated with the MET. Finally, for any changes concerning civilian personnel, the unions must be considered.

All of these factors serve as buffers to immediate action, but they by no means prohibit change. The changes taking place under the Model Installation Program show that major changes are possible if carefully thought out and justified. The new FM policy removes a major barrier to these changes and may help to sell them to organizations outside the engineering community.

Existing Air Force Policies

Since the Air Force shift to decentralization is just beginning, most BCEs remain quite standardized. It is useful to compare those organizations with FM organizations at Army installations.

The BCE budget function is a separate division, and the financial manager works directly for the BCE. All BCE budget functions are consolidated under that division, including the housing budget. Another separate division is the IE function, which handles the organization's automated systems. The shops are consolidated into an O&M division that also includes the supply, planning, work reception, and work scheduling functions. This puts the work reception and planning under the same division as work execution. To assist with the span of control, the O&M division chief, usually an officer (major or above) is supported by a deputy.

The Air Force facilities board is similar to the Army's installation planning board. At most installations the facilities board meets monthly or quarterly and is chaired by the base commander. The agenda and the board's involvement in FM vary among installations.

The former BCE procedures called for an annual work plan similar to that detailed in DA Pam 420-6. However, under the new AFR 85-2, this is not required. An Air Force representative stated the plan was not being prepared or followed, despite years of command emphasis.

Automation is extensive. The Work Information Management System is a sophisticated database and management tool. It has reduced work duplication by providing total FM information to the work receptionist. As a customer telephones with a work request, the work receptionist accesses the customer's facility data on the computer screen. The receptionist can then see if the work has already been reported

or conflicts with other scheduled work and can determine whether the facility is scheduled for demolition or other action that might preclude accepting the customer's request.

Emphasis on Customer Service

The Air Force Engineering and Services Center is working on an Air Force pamphlet on customer service. It will provide the information BCEs need to build an effective customer service program and is part of a renewed emphasis on customer service. One of the four principles of excellence listed in AFR 85-2 is "Focus on customer service," and 11 of the regulation's 34 objectives address customer service.

FACILITIES MANAGEMENT IN THE NAVY

The Navy has almost no centralized control of its FM program. The program falls under the Navy Facilities Engineering Command (NAVFAC), which has little authority to impose policies. Thirty-five percent of the Navy's FM funding is for nine completely autonomous public works centers. They are separate commands operating under the Navy Industrial Fund, and NAVFAC has not closely monitored their organization or policies. The remaining funds go to the 260 public works departments (PWDs), each of which falls under its installation's chain of command. PWDs' public works officers are only loosely bound by NAVFAC's policies.

The Navy's equivalent of DA Pam 420-6 is a NAVFAC Manual (NAVFAC M)-321, *Facilities Management*, which applies only to PWDs. Under current revision, NAVFAC M-321 includes a new chapter on customer service, a new emphasis by NAVFAC. Organizational guidance for PWDs is contained in NAVFAC Pamphlet (NAVFAC P)-318, *Organization and Functions for Public Works Departments*, and this pamphlet presents the Navy's FM philosophy, remarkably like that of the Air Force:

Authority should be delegated to the lowest component where information is available to make decisions. An effective technique for successful decentralized management is for organizational components to establish clearly defined objectives with each objective having attainable goals identified.

The Navy IG reviews the effectiveness and efficiency of public works organizations as part of field activity inspections.

The PWD's budget functions are usually consolidated and combined with the administration function in a separate division. In large PWDs, the budget function is entirely separate. The shops are consolidated into an O&M division under the shops engineer, who also has a branch to maintain the PWD's vehicles. NAVFAC favors the multiskilled craftsman concept for the shops, but the installations have run into resistance from the unions. The PWD often does not have an IE function. These duties are assumed by the assistant public works officer.

There is little emphasis on long-range planning. NAVFAC M-321 has only one page on it, and NAVFAC estimates that only 11 percent of PWDs have a good plan. The installation planning board usually meets annually or quarterly and is chaired by the installation's commanding officer or executive officer. The agenda varies among installations.

NAVFAC's emphasis continues to be separation of work identification and planning from work execution. Its belief is that the planned estimates should be used as a performance measure for those who execute the work. It also emphasizes facilities inspections and has a separate publication devoted to this requirement. Unlike the Air Force and Army, it expects most of its FM requirements to be identified through those facilities inspections.

CHAPTER 5

DISCUSSION AND CONCLUSIONS

It is entirely appropriate to compare Army DEHs with the FM organizations of the other Services and the private sector. All have similar FM missions and challenges, and the quality of civil service and private-sector managers seems comparable. Since their salaries are roughly equivalent, this is to be expected. Much of the discussion in this chapter will therefore address the various methods, procedures, and organizations of the private sector, the Air Force, and the Navy, as well as the Army.

TRENDS TOWARD DECENTRALIZATION

One private-sector trend, supported by organizational theory, is decentralization of decision making and operational responsibility. Corporate headquarters sets the goals, but the operational decision authority to meet those goals is delegated to the lowest practicable level. The personnel at that level are then held accountable for their decisions. The advantages of this approach, discussed in Appendix B, apply to FM, and the private sector organizes its FM functions with this approach in mind. Local FM is organized by the managers at the local level according to their knowledge of the needs and environment at their location. Even locally, the lower echelons of management are being allowed to organize their branches or shops as they judge best to meet the goals set by upper management.

The Air Force has recently shifted to a decentralized approach to FM even though it formerly had very centrally controlled and regulated FM organizations. A 3-year study convinced the Air Force Engineering and Services Center that the efficiency and effectiveness of FM can be drastically increased by allowing the BCEs more autonomy. BCEs are given firm FM objectives, which are directed by regulation, but they can now structure their organizations and implement management procedures to meet the objectives according to the needs of their installations' missions and circumstances. The BCEs must then convince the nonengineering functions – such as the civilian personnel office, the manpower

evaluation team, and the unions — that the changes are warranted. The Air Force is studying ways to make this last step easier for BCEs.

The final step in the new Air Force approach is accountability. With the responsibility to make changes comes responsibility for results. Regular visits from headquarters staffs and the IG are used for evaluating the BCEs' effectiveness in meeting the Air Force's FM goals and objectives. This approach parallels that of the private sector and current organizational and management theory.

Navy PWDs have had autonomy for years. However, their experience illustrates one of the precautions needed if decentralized decision making is to work effectively. Some Navy managers are concerned that installation commanders often make sudden, arbitrary, or unwise changes because there is no regulatory authority to stop them or to hold them to a standard organization or approved procedures. This concern is not shared to the same extent by Army or Air Force installation-level managers, possibly because their senior managers are more inclined to corporate decision making.

Army FM would seem to be a better candidate for decentralization than FM in either the Air Force or Navy. Army installations are more diverse in size, age, condition, and mission. As a general policy, the Army has joined the trend toward decentralized decision making. It calls the initiative a "power down" of authority and responsibility. The policy follows DoD Directive 4001.1, *Installations Management*, dated 4 September 1986. In FM, however, there has been no deliberate policy to initiate the concept. AR 420-10, *Management of Installation Directorates of Engineering and Housing*, requires Headquarters Department of the Army (DACS-DME) approval for any deviations from the standard installation organization (SIO). Installation commanders are charged with adhering to the DEH SIO, although AR 420-10 states that "installation managers should remain open to change." Change, however, has been happening by default. Many installations have prepared for the CAs competitions by reorganizing into an MEO. These MEOs are usually quite different from the SIO. In reality, even before the MEO changes, the standard organization prescribed in AR 5-3 and AR 420-10 is not regarded as mandatory and many installations had already departed from it. These organizational and procedural changes have made the detailed procedures recommended in DA Pam 420-6 less and less germane. This trend is bound to continue as more DEHs reorganize into their MEOs or contract out their FM

functions. There are no known quantitative comparisons of DEH effectiveness before and after these changes, but some of them are generally regarded as successful by DEH managers. Moreover, DEH management is almost unanimous in its desire for more decision-making authority and responsibility within a general framework of goals and objectives.

On the basis of current FM research and theory and the trends of modern FM in the private sector and the Services, including the Army, we conclude that it is time for the Army to encourage delegation of FM authority and responsibility. The initial results of this approach are proving successful. Moreover, an Army program to encourage this approach in FM would essentially be formalizing what is actually taking place, with the advantage of placing USAEHSC in front of the movement.

Accountability

One of the most important precepts of decentralization is the accountability that must accompany it. As previously stated, the corporate entity sets the goals, and the local managers are responsible for achieving them. In Army FM, however, this link is weak. There are few FM goals in regulatory form and few IG, MACOM, or USAEHSC staff visits to see if they are being attained. A clear policy of goals and objectives is needed. This policy should be general and should allow local managers to choose the organization and procedures required at their installations. However, it must carry the weight of regulation or it will be too easily ignored. Moreover, there must be a feedback loop to hold the local managers accountable. The most effective feedback loop is the site visit. It can serve not only to see whether the Army's FM goals are being met, but learn about local problems and successes. The experience gained from the visits can be shared with other installations during other visits or through pamphlets and other published guidance. With decentralization, regular visits to the field are more important than ever, since DEHs are already departing from the published standard organization and procedures.

The MACOMs make site visits and play a role in monitoring attainment of Army FM goals. AR 420-10 requires MACOMs to visit installations every 2 years and to report the results to HQDA (DAEN-ZCF), now called USAEHSC (CEHSC-FM). However, MACOMs are not in the best position for an Army-wide FM perspective, to share experience Army-wide, or to publish Army-wide information. USAEHSC is in the best position for those actions.

REORIENTATION OF FM PUBLICATIONS

The two primary publications on FM organization and procedures are AR 5-3, *Standard Installation Organization*, and DA Pam 420-6, *Facilities Engineering Resources Management*. Neither is written in a way that encourages decentralization.

As a regulation, AR 5-3 is directive in nature, and it details a standard organization for all Army functions, including the DEH. Little flexibility is allowed. There is a paradox between the Army's "power down" policy and the lack of organizational flexibility this regulation allows. This lack of flexibility has caused the DEHs simply to abandon the regulation as they try more efficient organizations to fit their local circumstances.

DA Pam 420-6 is a pamphlet, and its guidance is therefore not mandatory. However, it is written with a single set of detailed procedures for the standard DEH organization. This approach is becoming less and less appropriate as installations reorganize and change their procedures to meet local requirements. For this reason, the publication is now rarely used by most DEH managers.

A reorientation of these publications is needed. The standard organizations of AR 5-3 need to be reconciled with the "power down" concept, and DA Pam 420-6 needs to be brought into line with what is actually happening in the field. Together, these publications would better serve the needs of the field if they allowed more flexibility in DEH organization and procedures. Since there is no single best way to organize a DEH, a better approach would be to present the advantages and disadvantages of the many ways to organize each part of the DEH. The publications should also provide the circumstances under which various approaches have worked well or not so well. This is the sort of information most needed by DEH managers as they earnestly consider how best to reorganize.

This role of information disseminator is an important one for the FM publications. During our site visits, it soon became apparent that many were struggling with identical issues as they tried to reorganize effectively. Would it be more efficient to consolidate the budget functions, for instance, and what is the appropriate span of control for an O&M division? A lot of resources are being spent as each installation explores these issues. There is some cross-feed of information between installations through informal contacts, but a formal source of information

would be far more efficient. It would provide the information needed to help DEHs decide on the right organization structure and procedures for their missions and installations. This is especially true for Army DEHs, where directors are military officers from the Corps of Engineers with little former DEH experience and destined to be in the DEH position for only 2 or 3 years. This constant turnover produces decision makers who could benefit from a formalized information source.

Such an information source could also encourage creativity and risk taking as DEHs are exposed to various alternatives and learn from the collective experience of other installations. Moreover, DEHs may find civilian personnel offices and manpower organizations more willing to accept organizational changes if they are documented and encouraged by Army publications.

SUCCESSFUL ORGANIZATIONS

Chapter 2 presented several Army DEH organizational and procedural changes that have been generally accepted as working well. No quantified measure of their success is possible since there are no standard criteria with which to compare installations' performance. However, the experience of DEH managers is sufficient to judge performance before and after these changes were implemented. The merits of these changes are discussed below. This discussion could serve as the beginning of an information database for DEHs.

Consolidated Buildings and Grounds and Utilities Functions

Consolidating these functions into a single O&M function has the immediate advantage of economy of scale. Under the same manager, these functions find it easier to share equipment and sometimes personnel. Work coordination is made easier, and the director's span of control is reduced. Army installations managers have noticed that private-sector FM organizations combine these functions, and the potential efficiencies of this arrangement have driven many installations to adopt it. The Air Force and Navy have used the combined O&M concept for years.

The major disadvantage with a combined O&M is the increase in the O&M chief's span of control. This person is probably a former chief of B&G or Utilities Division. As the division grows, the technical, hands-on supervision techniques of a former B&G or Utilities chief become less and less appropriate. A large O&M division needs a professional manager used to dealing with subordinate supervisors.

That manager will probably spend no time advising or training workers on the technical aspects of their work. Instead, he or she will be dealing with the customers, the DEH, and other installation managers, and be handling personnel and budgeting problems. As our findings indicate, some O&M managers are finding the transition difficult.

O&M chiefs of large divisions have little time to provide technical advice to the work force. This means that this technical supervision must come from an intermediate manager at the branch chief level. These branch chiefs are each responsible for several shops, and the shops are headed by shop foremen — the lowest level of permanent supervision. The grade structures of these various levels of supervision need to be studied further before any conclusions can be reached. Moreover, the need for a deputy O&M chief also should be explored. The Air Force, which has combined O&M divisions, provides the O&M chief with a deputy, but this concept is frowned upon by the Army manpower office. Without a deputy, there may be a limit to the size of installation that can implement the O&M concept. A deputy O&M chief is more important for the Army since its installations, and hence DEHs, tend to be larger than those of the Air Force.

Installations have been struggling with these issues of O&M manning, grade structures, span of control, and management skills of the O&M chief. This is an area that could benefit from a formalized source of information. That source could be the USAEHSC and the Army's FM publications.

Project and Matrix Organization for O&M

Closely related to the O&M concept is project organization for part of the O&M function. This is certainly appropriate for the preventive maintenance, standing operations order, service order, and installation job order functions. These fit nicely into the organizational theory outlined in Appendix B. For this type of work, it is far more efficient for teams of skilled workers, managed by project or team leaders, to handle projects where workers move from project to project rather than to schedule several specialized teams for the same job. For service orders, for instance, there is far more flexibility for one person on a truck to respond to various types of emergencies, and if one service order team can complete a service order from start to finish, it avoids the inefficiencies of scheduling several shops for the same job.

For IJOs, however, project organization may not be appropriate. These jobs are larger and usually require more specialized skills. Individual crafts may be required for days before other crafts are needed. One or more IJO shops are therefore better organized by function. Within this functional organization, however, is the ideal place for matrix management. Members of each function combine into teams for each IJO. When the job is completed, they disband and recombine to meet the different needs of the next IJO. Project leaders select individuals from the functional shops as needed for each job. This matrix organization can be managed by schedulers or the IJO shop foremen, depending on such factors as the DEH organization, the size of the O&M division, the needs of the mission, and the personalities of the key players.

Multiskilled Workers

Project organization presupposes another management concept — multiskilled workers. This concept was almost universally applauded by the people at the installations visited. However, they are having difficulties implementing the change. The economies of having one worker or one team of workers handling a variety of jobs depends on those workers being fully trained and allowed to use multiskills. There are really two levels of skill that need to be addressed. At the semiskilled level, a multiskilled worker is useful to do the minor jobs required on service orders. Installations have reported, however, that when they require this multiskill capability, the civilian personnel office downgrades the position to "laborer," and it is difficult to hire people with the needed skills at such low pay. Once in the job, however, training the workers has not proved a problem. Most workers in one skill already have some knowledge of and aptitude for the others.

The other level of skill is at the journeyman level. A multiskilled journeyman can work on IJOs in a number of capacities and avoid some of the multishop scheduling that reduces efficiency. Writing the job descriptions for multiskilled journeymen would need special consideration by the civilian personnel office. Their grades would have to be higher, and personnel with the requisite skills may have to be hired into the jobs.

Installations have been negotiating with the civilian personnel office on these matters individually. This is one area where support from USAEHSC and FM publications would prove invaluable.

Consolidated Budget Function

Many installations have realized manpower savings and other economies of scale by consolidating all of the DEH budget functions. A consolidated DEH budget office should then be responsible for all fund sources, including Army family housing funds. AR 210-50 currently makes the DEH housing function responsible for housing funds, and some MACOMs still contact the housing officer when they have a housing funds question, instead of the consolidated DEH budget office. This has led housing officers to oppose the consolidated budget concept. They argue that the housing division should not have to retain this responsibility if its authority is taken away. To help sway the housing officers, a change to AR 210-50 is needed as well as a change in MACOM management philosophy. Both of these issues are best addressed by USAEHSC in an Army-wide approach.

Another housing division complaint is that it is harder to coordinate on housing funding actions when the budget function is under another DEH division. But this difficulty seems more the fault of management coordination than of the organizational structure. Even with its own budget function, the housing office must still coordinate on bachelor quarters funds and defend them against other requirements. A consolidated DEH budget function may serve to increase this coordination and interaction with the rest of DEH and help to bring the housing division fully into the DEH orbit. Any director contemplating a consolidated budget office should first look at the organization's information flow, management procedures, MACOM policies, and the personalities of the key players to see if the DEH would benefit from consolidation.

Positioning the Consolidated Budget Office

All DEHs should seriously consider following the Air Force and Navy example of placing the budget function directly under the director. This elevation from the ERM division will allow greater impartiality when dealing with all DEH divisions. More importantly, it will get directors and deputies more involved in the budget process. It will also speed up information flow and reduce misinformation often caused by long chains of command. Actually, as more and more management controls are linked to the budgeting process, the director and deputy are already treating the budget function as a separate organizational element, going directly to the budget chief and bypassing the ERM chief. This management anomaly is

unnecessary. Elevating the budget function will also put budgeting personnel in a better position for dealing with the Directorate of Resource Management and when attending the various planning and budget advisory committees. Putting the DEH budget chief in a higher position gives him or her more visibility when competing for installation funds.

Some installations, like the Navy, have put other functions under the budget division. In the Navy's case, it is usually administration, but it could be industrial engineering or management information systems. The division chief is the funds manager, however, so budgeting remains the main business of the division. Of course, if too many functions are placed under a budget division, it reverts to an ERM division and the concentration on budget issues becomes diluted.

One of the disadvantages of a budget function under the director is the increase in his or her span of control. If the director is already dealing with the budget office directly, however, the increase in workload would be insignificant. Another disadvantage is a further concentration of power in the budget office. There may be a tendency for the DEH long-term planning to become centered on the budget instead of engineering requirements. In fact, at many installations the budget office is already preparing the DEH's annual work plan. A director contemplating a change in the budget office's position should be made aware of these issues.

Placement of Installation Contracting and Supply Personnel in DEH Supply

At many installations, the volume of contracting and supply actions is sufficient to justify having full-time representatives in DEH from the installation's contracting and supply functions. Wherever this arrangement has been implemented, the results have been positive. The DEHs have negotiated with their contracting and supply counterparts for the positions. The personnel still work for their parent organizations, but they are located in the DEH supply area. This arrangement drastically improves supply and contract communications and coordination, and it reduces the response times for DEH requests. The dedicated contract and supply representatives become more familiar with DEH requirements and problems, and they can alleviate many of the frustrations that accompany DEH's dealings with its two counterparts. If all DEHs were made aware of this possible arrangement and how it was justified at the using installations, many more would try to implement the idea.

Consolidated Master Planning and Real Property

A number of DEHs have combined their master planning and real property functions and have reported success in doing so. Master planning's preparation of DD Form 1391 requires a significant amount of coordination with the real property function, including access to facility category codes, land and building use data, and lease termination information. This relationship between these two functions is stronger than the relationships they have with the other functions in the divisions prescribed by the SIO. The functional ERM and EP&S chiefs generally concur with this assessment. Therefore, it makes sense to combine the functions under a single organizational element. Whether the two functions are made organizational equals (e.g., making each a section under a single branch) or whether one is made to report to the other (e.g., real property being a section in a master planning branch) should be based on the personnel and other local factors involved. DEHs that do not have a significant amount of DD Form 1391 work may not require the needed coordination between the functions and therefore may consider other organizational alternatives.

The organizational location of a combined real property and master planning function depends on the level of its activity at a particular installation. Some DEHs have kept the combined function under the EP&S chief, while others have elevated its significance by making it a separate function reporting directly to the director. Both structures are legitimate. DEH must determine the organizational arrangement on the basis of local external factors as well as the personalities involved.

Job Order Contracting Element

Job order contracting is a relatively new and successful contracting tool used by DEHs. However, there is still some debate as to the type of work that the JOC should accomplish at the installation. Some assert that JOCs are more beneficial for supplementing the type of work normally accomplished by in-house work forces. Others maintain that JOCs are best suited for the type of work normally contracted out. However, in CA contracting environments, there is a potential for legal problems when a JOC contractor is performing the same type of work as a CA contractor. Overlapping scope of work between JOC and CA contracts must be avoided.

DEHs must resolve these issues and locate their JOC elements accordingly. Where the JOC will accomplish work normally supported by the in-house work force (and no potential conflict exists with CA contracts), the JOC element should be located in an ERM- or O&M-type function. Where the JOC will accomplish the type of work normally contracted out, it makes sense to locate it in the EP&S function.

Current U.S. Army Training and Doctrine Command procedures are to locate the JOC element in an EP&S function because this MACOM has concluded that the JOC is best suited for the type of work DEHs normally contract out. Additionally, this minimizes the likelihood of legal ramifications with scope-of-work conflict with potential CA contracts.

Service and Construction Contract Inspection Functions

DEHs that have disjointed contract inspection located in several different functions (e.g., O&M, ERM, and EP&S) should consider consolidating all of them into a single organizational element. As a result, overall DEH manpower savings may be realized as well as improvements in the contracting inspection operations. Because of the dissimilarity of service contract and construction contract inspection functions, DEHs should consider separate functions for each.

Normally, a consolidated contract inspection function performs well under the EP&S chief, where the DEH contracting experience lies. However, DEHs that have lost their in-house work forces to CA contracts may find that the additional service contract inspection workload warrants a separate reportable contract inspection function under the director.

Environmental Function

Because of the increasing sensitivity associated with the environmental function, DEHs should consider their organizational locations carefully. Installations that have a significant environmental workload or at least one with high visibility should consider placing the environmental function under direct supervision of the director as a division or office function. At installations with few environmental problems, where the function is of less importance, it may be logically placed in a number of locations, including the EP&S function, or the ERM function, or it may be combined with the planning or energy management functions. The placement of the environmental function is a good example of why the DEH needs the

flexibility to organize according to the needs and circumstances at its installation. With such a wide spectrum of environmental actions among installations, no one organizational structure will suffice.

OTHER ORGANIZATIONS AND PROCEDURES

Installations have implemented other organizations and procedures that are not yet so generally accepted as successful. In fact, there is much debate over their advantages and disadvantages and over the criteria under which they work best.

Long-Term Planning

The use of long-term planning is an issue that is being hotly debated in the private sector as well as the military. In the private sector, the planning horizon is usually no more than 1 or 2 years although many companies feel that this is not enough. The Air Force has just eliminated the requirement for an annual work plan, and the Navy devotes little attention to it. Management theory, however, stresses the value of long-term planning, and the lack of it has been blamed for the deteriorating position of American business in the world market.

The most frequent reason for not planning beyond the short term is that things change so quickly that any plans are outdated almost immediately. The greatest role of the long-term plan, however, is as an organization integrator. Even if the finished plan is not used, the act of preparing the plan brings the DEH organization together to exchange information, debate the issues, and decide on a general direction for the organization. For many DEHs, this role of integrator is performed by the budget function, although the long-range DEH plan should not be merely a budget document. In the private sector, the long-range FM plan is usually tied to the business plan. The equivalent at an Army installation would be tying the DEH RMP to the installation master plan.

Most DEHs do not prepare the single document called the "resource management plan," which is the long-range plan devoted to FM, covered at length in DA Pam 420-6.

It is not true, however, that this planning is not done. As the findings in Chapter 2 indicate, DEHs' plans can be found in a number of documents, but the information in them is not repeated and consolidated in a single document called the

RMP. Unless the director is seen to use an RMP routinely, it is regarded as unnecessary duplication of effort.

Similarly, although the installation may not be producing an in-depth master plan, it is not true that such planning issues are not being considered by the DEH. The DEH is not in the position to integrate the planning for the entire installation — by regulation, that job belongs to the installation commander — but it is important that whatever master plan the installation has, the information be incorporated in the DEH's long-term FM plan. This integration does not take place in a single document but comes about through a DEH "integrator."

In this role of integrator, we have seen — depending on the installation — the operations office, an actual planning division, the master planner, and the director and deputy. It is these last two, however, who can best serve in that role. Normally, only the director or the deputy attend the myriad planning activities that occur at an installation: the master planning board; the installation planning board; the program and budget advisory board; the morale, welfare, and recreation advisory board; the Army and Air Force Exchange Service (AAFES) advisory board; the commissary advisory board; installation staff meetings; and mobility and mission planning meetings. The information from all of these creates the mosaic that becomes the FM long-range plan. This is not to say that the director or the deputy should work on the FM plan as an action officer. Their role, as integrators, is to ensure that DEH systems are set up to integrate the information into DEH planning and to see that the information reaches the appropriate DEH action office. For instance, much of the installation's master plan involves expanded or new facilities. All siting issues — whether from AAFES or a new weapon system — should therefore be funneled through the master planner.

Even though AR 210-20 requires all tenant units, agencies, and activities to coordinate 5-year requirements, amendments, and modifications to the master plan, failures occur when this is not done and the DEH does not move to correct the system. The DEHs have told us, however, that these failures do not occur often enough to create another system to act as a safeguard. Another system could take the form, for example, of a master planning division with additional staff responsible for attending all of the meetings the director or deputy attend and for reviewing all documents for all plans that the installation is creating. This would be the worst form of duplication, however, and there is no enthusiasm for this approach among the

installations. The director and deputy already attend the meetings, and requirements already exist to funnel most of the information through DEH. As indicated, this is not to say that there are not system failures. AAFES may begin construction without coordinating it with the master planner, or an organization may order a major piece of electrical equipment and not tell DEH until a week before it arrives. The DEH portion of the master plan is only as good as the inputs it receives. But if the system is not working, the failure is in leadership and management, not in organization or procedures.

Moreover, installations feel that the cost-benefit ratio of an additional, fail-safe system would not justify it. If the current system fails, there may be a loss of project design time, expedited construction, or wasted maintenance and repair time, but the DEHs feel that the cost of these occasional failures has been far less than the cost of creating and maintaining another, fail-safe system.

On the two levels of long-range planning, then — the DEH involvement in the installation master plan and the RMP — most DEHs have systems in place. For the master plan, the planning is so complex and at such a high level that the director or deputy must act as the planning integrator. In fact, this is one of the major responsibilities of their jobs. For the RMP, the planning does not appear in a single document, but there is some planning being done. The detailed RMP example in DA Pam 420-6 is therefore viewed as superfluous and is essentially ignored.

Under the "power down" concept, the DEHs should be allowed to decide how to meet the Army's long-range FM planning objectives and decide what form the documentation should take. It is important to state clearly what those mandatory objectives are and then hold the DEHs accountable for meeting them. The Army's objectives for master planning are laid out quite well in AR 210-20, but this kind of clear directive for the DEH's long-range FM planning is missing. Long-range FM planning was required by a single sentence in AR 420-17, *Real Property and Resource Management*, but even this regulation is being revised to eliminate its FM role. AR 420-10 does not mention long-range planning.

The Role of the Installation Planning Board

The IPB can be a key player in the integrated installation plan and the RMP. It can serve as one of the links to tie the FM plan to the installation's "business plan," as is done in the private sector. Private-sector boards meet frequently and have vice

president involvement. DEH managers have mixed feelings about a similar role for the IPB. If the IPB meets to decide FM priorities and the installation commander backs it up, the DEH is relieved of the pressure to arbitrate among other organizations or to react to every demand for RPMA. This assumes, however, that the IPB is competent to make sound decisions about all FM priorities. In the DEH's experience, the IPB does not give enough weight to the important but unglamorous work such as utility repair or expansions to a sewage disposal plant. While this work is a large portion of a DEH's responsibilities, it is usually not thought of by the base population. Instead, DEHs perceive that too high a priority is given to the highly visible, sometimes emotional, and more immediate requirements such as carpet replacement, dormitory upgrades, and interior decoration. These actions are important, but if they are carried on to the exclusion of the more mundane maintenance and repair tasks, the installation's infrastructure begins to fail. The eventual fix is far more costly, and the constant interim repairs eat away at the resources needed for work elsewhere. In the end, a failing infrastructure will have far more dire consequences for the base's population and mission than frayed carpet and fading paint.

The DEH's dilemma is how to give customer service by allowing the IPB to prioritize the requirements while ensuring that the needs of the infrastructure are met. There is a possible compromise. Resources can be reserved for some of the infrastructure needs before the IPB meets. The IPB can then prioritize the remaining requirements within the remaining resources. Implementation of this approach is not easy. First and foremost, it needs the backing of the installation commander. If the commander keeps taking from the resources reserved for the infrastructure, or keeps adding requirements to the "must do" list, the system collapses. (This is, of course, true of any DEH work priority system.) Without the installation commander's backing, no system can handle the pressures of too many requirements for too few resources. Second, the installation management must agree on how much of the RPMA budget is to be reserved for infrastructure needs. At most installations, these needs could easily consume the entire RPMA budget and more. To make the system work, some funds will have to be released for the IPB to spend. Finally, with two priority lists to work from, the director may have to decide how the projects are to compete for design time.

Since directors have a great deal of influence on how the IPB is run and the policies it adopts, they should be made aware of the above issues and tradeoffs before recommending an IPB policy.

The Placement of the Supply Function

The DEH supply function can reasonably be placed in one of three organizational locations. It can be a separate division, as depicted in the standard installation organization; it can be a function under ERM; or it can be a function under a combined O&M function. Each of these positions has advantages and disadvantages.

As a separate division, the supply function has better access to the director or to the deputy director. Some of the worst problems a DEH has are supply problems, and the director's involvement may sometimes be needed. Moreover, as a division, the function may be in a better position to deal with base supply and contracting without having to elevate as many problems. The disadvantage is that, with the addition of another division, the director's span of control is widened and he or she may become embroiled in the daily routine supply problems with the hundreds of line items that are on order. On a daily basis, the supply function must coordinate with both ERM and O&M. It does not have much interaction with the other DEH functions, however, so the majority of the DEH will not be affected no matter where it is positioned. Two crucial factors in the decision seem to be the state of the installation's supply system and the pressure from the customers or mission to expedite supplies. If there are constant problems requiring the director's attention, a separate function is called for. If the installation has a stable mission and a relatively efficient supply system, then DEH supply could be considered for placement under either the ERM or the O&M function.

Putting supply under a standard ERM puts it close to the work control functions. The work scheduler coordinates with the supply function when updating work request status and determining material lead times. The planners and estimators get help from supply in determining vendors and costs. When IJOs have all the materials available, supply has to notify ERM. All of these actions are facilitated by placing supply under ERM control. Doing so could create a barrier for the O&M shops to deal with if they were forced to go through the ERM chief, but this

would be unlikely. Some DEHs may feel that putting the supply function under ERM would create a needed check and balance system for supply accountability.

Under O&M, other aspects of supply coordination would be facilitated. When work is scheduled, the O&M shops initially pick up the materials from supply, and they continue to coordinate with supply throughout the life of the job. At the start, invariably not all of the material is in, or some of the material is not right for the job. O&M shop personnel must therefore coordinate closely with supply, providing descriptions of the supplies needed and suggesting source vendors. Moreover, the shops have a great deal of supply coordination unrelated to IJO material. Shop supply stocks must be replenished, tools must be replaced, parts for shop equipment must be ordered, and special clothing must be procured. Usually, O&M coordinates more with supply than does ERM. This coordination would go smoother if both were under the same functional chief. Information flow would become less formal, and some administrative checks and balances could be removed. This is not to say that the supply audit trails would suffer, but as the Fort Bragg experience in our findings shows, when functions are held separately responsible for a requirement, they each establish detailed controls to record when the requirement is passed back and forth. This is a measure of protection in case there are problems, but it slows down the entire process. If some of these controls could be lifted, the paperwork flow would be smoother.

The major disadvantage with placing supply under O&M is a further increase in the O&M chief's span of control. The risks associated with a wide O&M span of control were discussed above. If the DEH wants to further expand the span of control to include the supply function, a professional O&M manager is a must. Also, the whole issue of the grades and numbers of subordinate supervisors must be studied. The Air Force has achieved this integration, but the O&M chief is usually a field-grade officer supported by a senior wage-grade deputy.

A related issue is the placement of the furniture management office under either the housing or supply function. This furniture is used in some family housing, but its use has diminished over the years. Under family housing, the function is more responsive to the needs of the family housing officer. It is strictly a supply and warehousing function, however, and there may be economies of scale if it were placed under the DEH supply function. Personnel, equipment, and space could be shared.

The Placement of Work Reception, Planning, and Scheduling

In the standard installation organization, work reception, planning, and scheduling are placed under ERM. This makes a clear distinction between the work processing and work execution functions. This is required for DEHs under CA contracts, because a contractor that identifies the work as well as executes it might be tempted to identify more than is needed. For an in-house operation, however, the case is not so clear cut. If these functions were under O&M, it is unlikely that it would identify more work than is needed. (Indeed, some have suggested that O&M would identify less work due to complacency.) Rather, the rationale is to maintain a policing or oversight role to monitor the executors. For instance, the planners/estimators estimate the labor hours required for a job, and the O&M shops are then judged on how close they come to the estimate; work reception receives an SO, and O&M is judged on how quickly it responds. The theory is that an outside monitor will force the workers to be more efficiency minded and do more work. This arrangement often leads to conflict, since the executors blame the planners for poor planning and the planners accuse the executors of inefficiency. There is usually no way to settle these disputes unless the job site has been visited several times while the work was being performed and the plans and execution observed.

A totally different approach is to combine the work processing and execution functions under the same manager. Where this has been done, the ERM personnel are against it saying that abuses and inefficiency are likely and that it is like "Letting the rabbit look after the lettuce." The Navy, too, is against this approach and has a firm policy of keeping the functions separate. The Air Force, however, has used the system for a number of years.

Placing work reception, planning, and scheduling under O&M diminishes their oversight roles. The roles are not totally eliminated, however, since the personnel are in different branches. As oversight is reduced, cooperation is increased. The theory of this approach is that the role of those who process the work is to serve those who execute it. Their job is not to serve as watchdogs but to cooperate with the shops to produce the best work reception, planning, estimating, and scheduling possible to make O&M's job easier and more efficient. This assumes that O&M workers would generally work hard and be efficient if they had good plans, estimates, and schedules. The main purpose of labor-hour estimates then shifts from an O&M performance measure to a means to schedule work effectively. Work planning becomes a

cooperative effort between planners and executors to ensure that the job goes quickly and smoothly. Similarly, scheduling becomes more of a cooperative effort than an O&M scoreboard. Conflicts do not have to be elevated to the director's level to get resolved. As the formal barriers between work control and execution are removed, informal lines of communication are developed and there is the potential for increased efficiency.

When weighing the advantages of placing work processing under O&M, a director should be made aware of the potential disadvantages. Once again, the span of control of the O&M chief would be widened, making it even more imperative to have a professional manager in that position and not just a promoted technician. This is not to say that technicians cannot make good managers but that their management expertise should not be taken for granted simply because they have been good technicians and supervisors. The increase in span of control with the inclusion of work processing is especially sensitive since its functions require a lot of management attention. In addition, the partial loss of the O&M watchdog function requires the O&M chief to spend time away from the desk to wander around the various work sites. This will give him or her a firsthand look at how efficient the executors are and how good the planners and schedulers are. The evaluation of work performance is thereby moved from judging the process to judging the results. This is probably more of an advantage than a disadvantage.

The director is in the best position to determine whether or not combining work processing and execution would work at his or her installation. It depends on the strengths of the supervisors, the manning and grade structure that can be negotiated, the level of turbulence from the mission or installation managers, and the work ethic of the workers. The director should not be forced to make that decision in a vacuum, however, and he or she should be made aware of the issues discussed above.

Elimination of Work Duplication

When work is planned and scheduled that duplicates or conflicts with previously planned and scheduled work, the results can be expensive and embarrassing for the DEH. This problem does not occur often enough, however, to warrant committing more resources to its elimination. Another system could be imposed, for instance, to funnel all in-house and contract work requirements through a single coordination office at each stage of their development. The staffing and other

resources needed for such an office, however, would have to be considerable to prevent a bottleneck of requirements awaiting review. A director has enough existing and forthcoming systems available to keep work duplication to an acceptable level without having to commit additional resources.

The two places to stop work duplication are at work reception and at work scheduling. It will be easier for a DEH to catch duplicate or conflicting work requirements when Integrated Facilities System, Mini/Micro (IFS-M) is installed and operational. IFS-M, as designed, will act much like the Air Force Work Information Management System discussed in Chapter 3. There is skepticism in the field, however, as to how well IFS-M will live up to its published specifications. The categories of work that need to be searched at work reception include SOs; IJOs; minor construction, maintenance, and repair contracts; demolitions; the military construction program; and changes of facility use, and it would be far quicker to automate the search than to do it by hand. The computer is ideal for this type of search, which is now a commonplace application for it. Whether the IFS-M or its successor meets the requirement, an automated search is needed at the point of work reception to help reduce work duplication.

The second point at which work duplication can be caught is at the point of work scheduling. DEHs can more easily implement the needed procedures here, and many have done so. Coordination between the work scheduler and EP&S can eliminate the most common form of duplication: an in-house IJO and a contracted project. At many installations, the EP&S chief attends the weekly O&M scheduling meeting and sees firsthand what in-house work is being scheduled. The EP&S chief can identify conflicts with projects already in the system. There is a cost to identifying duplications at this stage, however. Canceling the in-house or contract work may mean the loss of design or planning time, and funds spent on materials may have been wasted.

Each individual DEH can best determine the amount of work duplication occurring at its installation and the amount of coordination needed. There is no need for another system to be imposed Army-wide through the SIO. The Army should continue implementing IFS-M and if it does not meet all the requirements, augmentation systems should be considered which are adaptable to the personal computer. IFS-M provides the database which should be used for extraction of basic

data along with the use of common data elements for any additional or supplementary systems.

The Role of Industrial Engineering

The IE positions at many installations have been sacrificed as DEHs meet the demands of RIFs and try to compensate for positions eliminated during CA reviews. To be justified, the IE positions should introduce efficiencies and cost-savings measures greater than their annual salaries and other costs. These savings are often difficult to quantify, however, and without direct evidence of usefulness, the function is eliminated. This is especially true if the director does not understand what an IE function is supposed to do. Without clear IE objectives, this function can easily degenerate into an additional duty section or another administrative branch. Another problem heard from DEHs is that the grades in the IE branch are not high enough to attract the best engineers, and a mediocre IE branch is even more vulnerable to manpower cuts.

At those DEHs still having an IE function, it is usually found under the ERM chief and often combined with the automated systems management function. The IE-automated systems combination is popular because IE technicians are usually trained in automated systems programming. The advantage of placing it under ERM is that the industrial engineers and IE technicians are close to files, management systems, budget, and other data often needed in their analyses. Placed under ERM, however, the function may become parochial or at least be seen as such. This is especially true if relations between ERM and O&M are not good. The Air Force and Navy, where they have the function, have solved that problem by elevating the IE function to a separate division. This arrangement increases the director's span of control, but the added burden is light because the IE function does not require a great deal of daily oversight. The director's burden may be further lessened by combining the IE and administration functions into a single function although this may "dilute" the effectiveness of the IE function. As a separate function under the director, the IE function has greater access to the whole of DEH and stands a better chance of being perceived as an asset for all to use. It also puts the function closer to the director and increases the chances of the IE analyses and ideas being heard. Also, with IE as a separate division, the supervisor's grade may be increased to attract the professionals needed.

The latest guidance from USAEHSC encourages division and branch chiefs to participate in more of the IE requirements. They can be responsible for their own review and analysis programs, for instance, and assign to their staffs some of the studies requiring the simpler IE techniques. An alternative is a consolidated review and analysis group, normally in the management and engineering systems branch. These approaches become crucial as IE functions disappear. Without an IE function, the more complex study needs will have to be referred to an installation analysis function. The DEH alone can weigh the benefits of an in-house IE function at its particular installation and make the tradeoffs needed.

THE ROLE OF QUANTITATIVE MEASURES

There currently are no quantitative measures of FM performance that can be applied to more than one installation. The private sector is struggling to develop them, and all the Services have expressed the need for them. USAEHSC has a review underway to establish them. A 1983 LMI study for the Office of the Secretary of Defense developed a few factors for comparison of RPMA costs based on regression, but in the process showed how difficult it would be to develop a full range of comprehensive, universal performance criteria.

The problem is fourfold. First, many Army installations do not have the database on which to build quantitative measures. Several installations we visited, for instance, do not keep records on the average turnaround time on IJOs or the average response time for SOs. Second, there are no universal definitions for much of the data in the databases. Work classified as an SO at one installation may be handled as an IJO at another. Third, the quality of FM is often determined not by the DEH's performance but by the level of RPMA funds the installation receives. This would invalidate such measures as maintenance dollars spent per square foot of facilities. Finally, there are too many non-DEH factors that affect FM performance. The installation's mission, the policies of its MACOM, the age of facilities, and even the weather affect the quality of an installation's FM. Finding useful, universal factors for comparing FM among installations is currently not possible. The few factors that have been quantified, such as those in the LMI study and those required for the Army's technical data reports, are at such a macro level as to be of little use in detailed comparisons of DEH performance. As the "power down" concept is

implemented and DEH's choose different organizational structures and procedures, it will become even harder to find common factors to compare.

There is, however, a more important use for quantitative measures than making comparisons among DEHs. They may be used by DEHs to review and analyze their own performance. This year's statistics may be compared with previous years', and one part of the installation may be compared with another. There are some instances where this sort of review and analysis is being done, and finding quantitative measures for it is relatively easy. They can be applied only to the installation that derived them, however. The DEHs lack an Army directive or objective to perform this in-house review and analysis, and in most cases it is not being done.

EMPHASIS ON CUSTOMER SERVICE

Although the private sector has no quantitative measures of FM performance, its biggest qualitative measures are responsiveness and quality of service. These are frequently measured subjectively by how well the customers perceive they are being served. The Air Force is soon to have a publication devoted to customer service, and the Navy is to devote an entire chapter to it in its next FM manual. The Army addresses the issue in only one page contained in DA Pam 420-8, *Facilities Engineering Management Handbook*.

What the other two Services and the private sector have discovered is that the level of customer service can be the most important measure of FM success. The customers have to be identified, contacted, and constantly surveyed for their degree of satisfaction with the responsiveness and quality of FM services. Their input, even though it is subjective, is the best measure of FM success.

CHAPTER 6

RECOMMENDATIONS

ESTABLISH POLICY AND PROCEDURES TO DECENTRALIZE FACILITIES MANAGEMENT

The U.S. Army Engineering and Housing Support Center should establish a clear policy of delegating decision authority and operational responsibility to the DEH level and publish the regulations and pamphlets needed to implement this policy. The DEHs are already assuming this authority by default. USAEHSC needs to get ahead of the process, formalize it, organize it, and take the lead. Doing so will bring DEH into line with the Army's general policy of powering down as much authority and responsibility as possible to the installations.

Many of the changes the DEHs have introduced under the authority they have already assumed have been working well. They respond to an installation's particular environment and circumstances. Variations in the installation's size, the age of the facilities, the dynamics of the mission, the style of installation and DEH management, the culture of the local work force, and the personalities of the key players present each director a different set of challenges and opportunities. The DEH management is in the best position to determine how these factors are affecting FM at its particular installation and what organization and procedures are needed to meet FM objectives.

The FM goals, on the other hand, are the purview of the Army, not the installations. USAEHSC is in the best position to determine those "corporate" goals for Army's FM, and they should be clearly communicated to the DEHs. The DEHs' organizations and procedures should then be established to implement the Army's objectives.

Although each DEH will be reorganizing and establishing its own procedures, this process should not be carried on in a vacuum. There are efficiencies to be gained by educating the DEHs in what changes are possible, their advantages and disadvantages, and which ones are already succeeding under what circumstances.

Once again, USAEHSC is in the best position to research this information and publish it to the field.

ESTABLISH ACCOUNTABILITY

Along with authority comes accountability. Once the DEHs have been formally delegated the decision authority and operational responsibility for FM at their installations, they must be held accountable for the results and for achieving the Army's established objectives. Currently, there is no clear mechanism to hold DEHs accountable at the Army level. USAEHSC should develop mechanisms to establish this accountability. Examples of these mechanisms include budgetary and manpower reports, customer-oriented performance indicators, and on-site visits. The on-site visit is one of the best mechanisms for establishing accountability. MACOMs should continue forwarding the results of their site visits to USAEHSC for review, and USAEHSC should begin its own program of regular site visits. In addition, USAEHSC should coordinate with the IG staff so that IG site visits produce meaningful assessments of how well the DEHs are attaining the Army's corporate objectives.

The USAEHSC and MACOM site visits should also be used to gather information on the new ideas being tried in the field and how well they are working. This information should then be disseminated among all DEHs.

REORIENT THE ARMY'S FACILITIES MANAGEMENT PUBLICATIONS

The Army's current FM publications do not lend themselves to the policies outlined above. The goals and objectives should be consolidated and clearly defined in regulatory form. The information on what changes are possible and under what criteria they have been succeeding may be passed on through Army pamphlets. The simplest arrangement would be to use AR 420-10 for the regulatory portions and DA Pams 420-6 and 420-8 for the supporting information. Alternatively, the two pamphlets could be combined into one. Whatever combination is used, the three publications should always be reviewed together. A change to one should initiate an automatic review of the others to see if they also need to be changed. This procedure will prevent conflicting and outdated guidance.

The alternative organizations and procedures and their advantages and disadvantages discussed in this study should serve as the basis for the information

needed by the DEHs. Further research and coordination with the MACOMs will expand the list and add to the discussion. Moreover, USAEHSC coordination with other headquarters functions such as the civilian personnel office could help to settle issues common to all DEHs. This information, when published in pamphlet form, will aid the DEHs in their decision making, prevent duplication of effort, and help the DEHs deal with the other functions at their installations.

USE QUANTITATIVE MEASURES FOR INTERNAL REVIEW ONLY

Currently, few quantitative measures are available to make detailed FM comparisons among installations. The private sector and the services are researching factors to use for these comparisons but so far without success. The factors currently in use are subjective rather than quantitative. Quantitative measures should therefore not be used to compare installations for award programs or as measures of performance. This unsuitability of quantitative measures for comparing installations will become even more apparent as DEHs continue to depart from the SIO and adopt their own procedures. As the DEH organizations diversify, it will become even harder to identify quantitative measures that can be universally applied. For example, a comparison of backlogs of urgent and routine service orders will not be meaningful if some installations no longer use those classifications of work.

Quantitative measures are, however, extremely useful for an individual installation. They can be developed to compare current and previous performance, to compare different segments of an installation, to detect trends, and to assist in long-term planning. Research in this area should therefore continue and be passed on to the DEHs to use as they see fit.

EMPHASIZE CUSTOMER SERVICE

One of the FM objectives included in the Army's list should be the provision of excellent customer service to DEH customers. A clearly articulated goal is needed. Also needed is information to help the DEHs orient their organizations and procedures toward meeting the needs and expectations of their customers.

This move toward emphasizing FM customer service would bring the Army into line with the private sector and the other Services. Such emphasis can be the best

way to support an installation's mission and make the entire FM process more efficient.

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- Interview. Directorate of Engineering and Housing, Fort Riley.
- Interview. Directorate of Engineering and Housing, Fort Sill.
- Interview. Directorate of Engineering and Housing, Picatinney Arsenal.
- Interview. Directorate of Engineering, Housing and Logistics, White Sands Missile Range.
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Interview. Headquarters U.S. Army Materiel Command, Alexandria, Va.

Interview. Headquarters U.S. Army Training and Doctrine Command, Fort Monroe, Va.

Interview. Kreon Cyros, Director, Office of Facility Management, Massachusetts Institute of Technology.

Interview. Martha O'Mara, Director, School of Design, Harvard University. Author of Ph.D. dissertation, "Organizational Strategy and Facility Management."

APPENDIX A

**STANDARD SERVICE FACILITIES
MANAGEMENT ORGANIZATIONS**

STANDARD SERVICE FACILITIES MANAGEMENT ORGANIZATIONS

This appendix presents the Services' standard organizations or models for their Facilities Management organizations. The Army's standard installation organization is prescribed by regulation, Army Regulation 5-3, *Standard Installation Organization*. The Navy's model is not regulatory but is shown in a pamphlet, Navy Facilities Engineering Command Pamphlet P-318, *Organization and Functions for Public Works Departments*. The Air Force no longer mandates a standard organization. The one shown is the one used before the Air Force implemented decentralization.

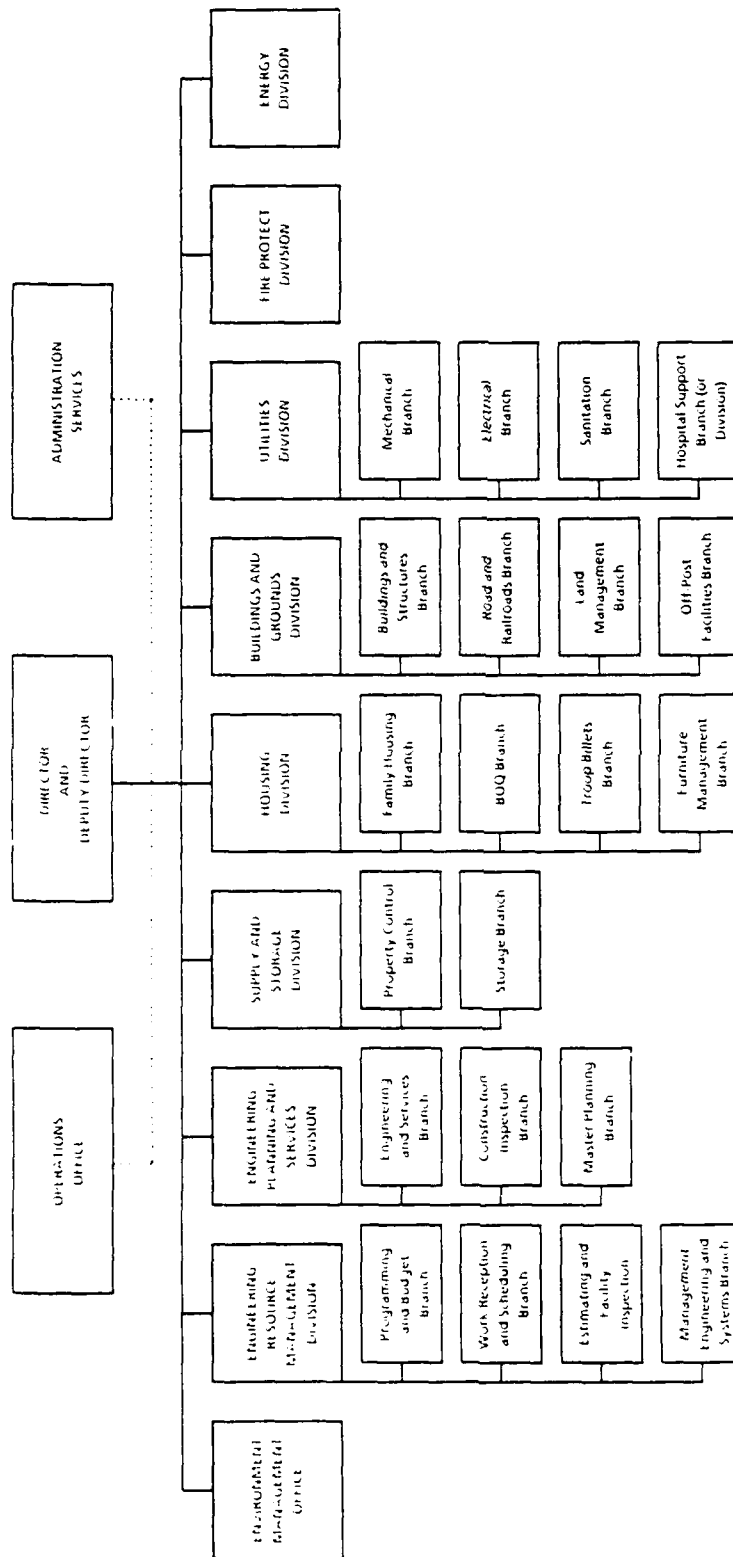


FIG. A-1. ARMY STANDARD DIRECTORATE OF ENGINEERING AND HOUSING ORGANIZATION FOR IN-HOUSE OPERATIONS

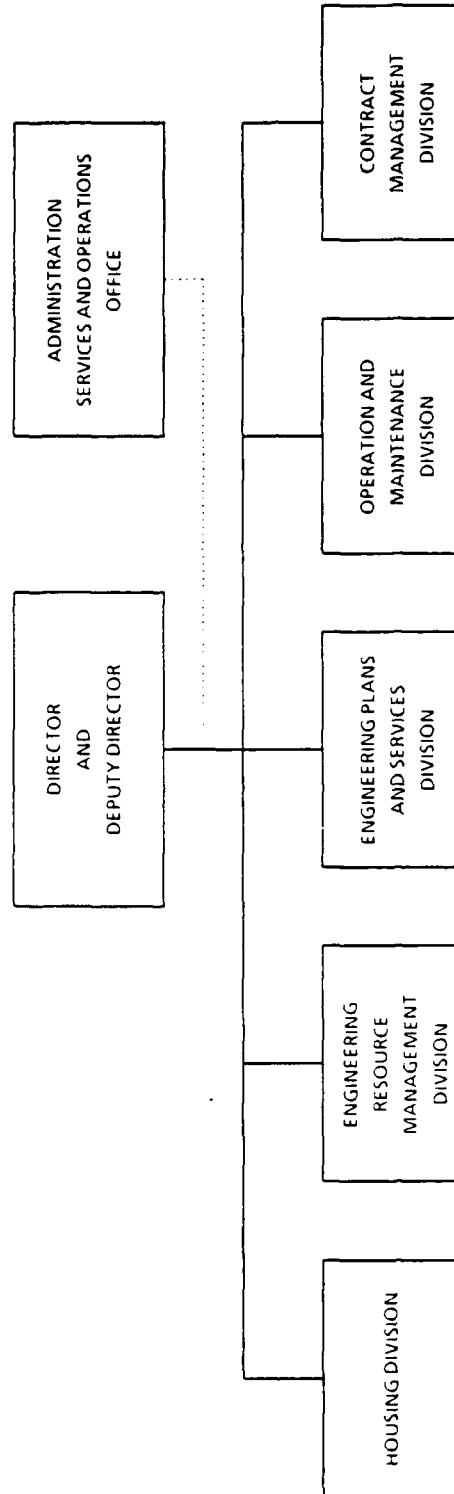


FIG. A-2. ARMY STANDARD DIRECTORATE OF ENGINEERING AND HOUSING ORGANIZATION FOR CONTRACTED OPERATIONS

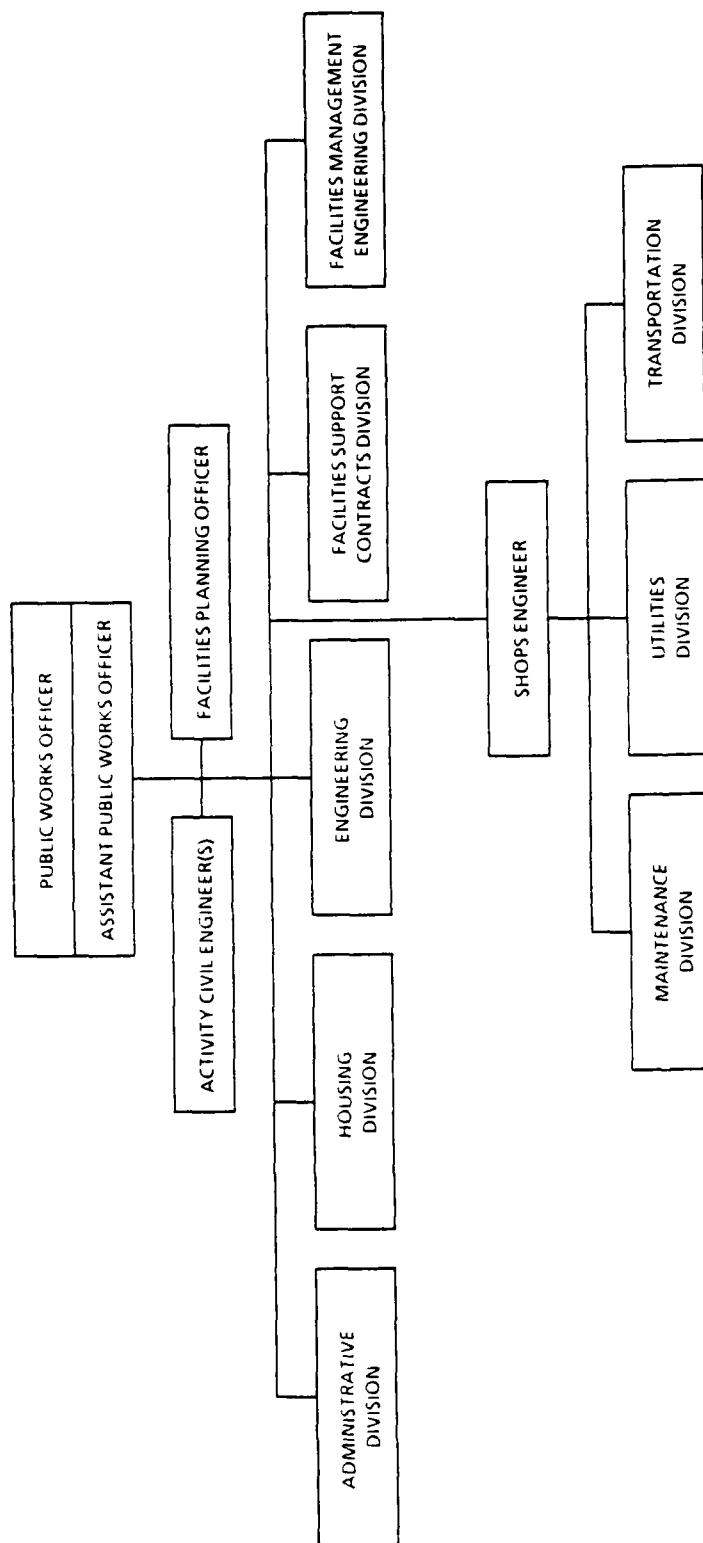


FIG. A-3. NAVY STANDARD PUBLIC WORKS DEPARTMENT ORGANIZATION
(FOR PRODUCTION DIVISIONS WITH OVER 100 POSITIONS)

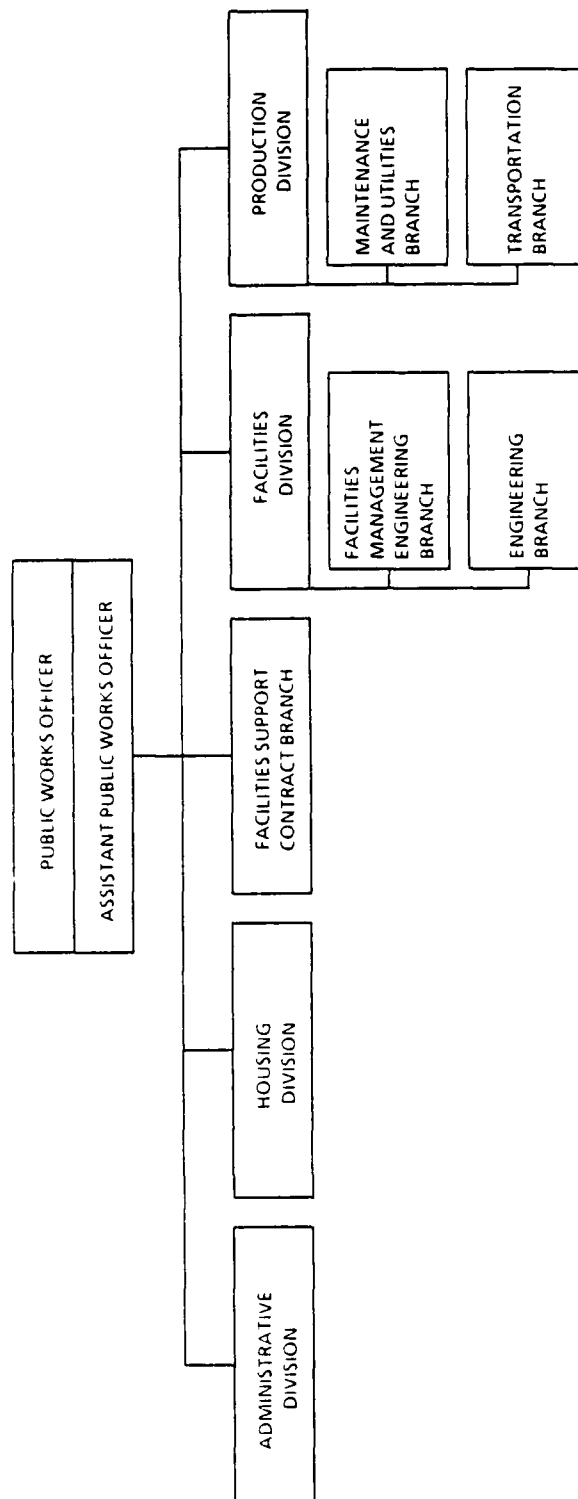


FIG. A-4. NAVY STANDARD PUBLIC WORKS DEPARTMENT ORGANIZATION
(FOR PRODUCTION DIVISIONS WITH LESS THAN 100 POSITIONS)

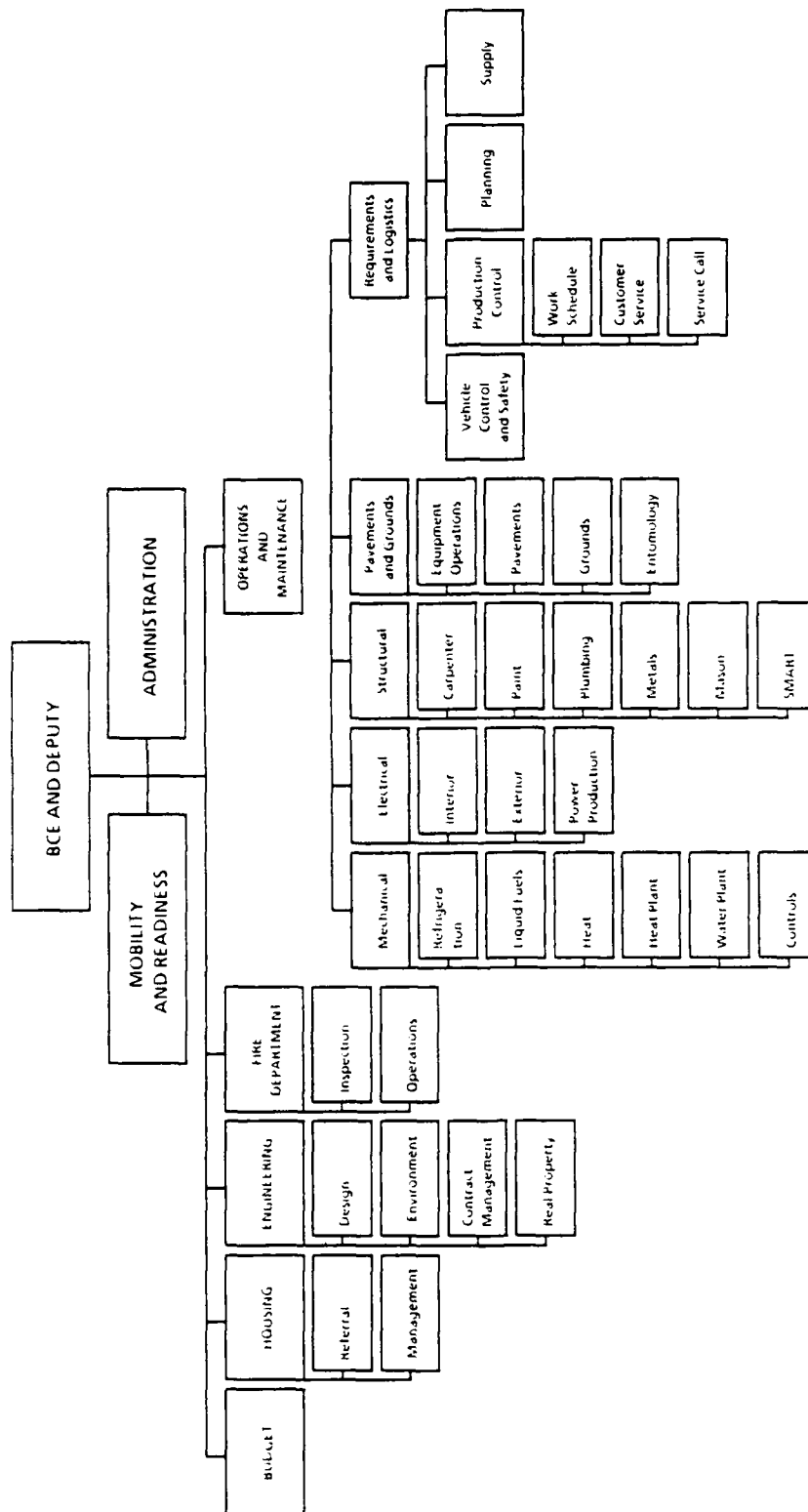


FIG. A-5. AIR FORCE STANDARD BASE CIVIL ENGINEERING ORGANIZATION

APPENDIX B

APPLICABLE ORGANIZATIONAL THEORY

APPLICABLE ORGANIZATIONAL THEORY

This appendix explains areas of organizational theory and management science relevant to the study of Army Directorate of Engineering and Housing (DEH) organizations. It is not meant to be an all-encompassing review (any organizational or management textbook is a better source) but merely an overview of the salient principles essential to this study.

DEPARTMENTALIZATION

Departmentalization refers to how various job functions are built into sections, branches, or divisions. Theoretically, an organization may be departmentalized in one of several ways. For a task-oriented activity such as a DEH, this boils down to functional or product line (or in the case of DEH by "project") organization.

Functional Structure

Functional departmentalization means that jobs are grouped by area of expertise or skill (e.g., electrical, budgeting, carpentry, engineering). This is clearly the most prevalent form of departmentalization in the DEH today. The advantages of organizing functionally are:

- More cost effective, since specialty shops are grouped together and therefore very little duplication of effort exists
- Easier to manage, since managers need to be experienced only in a narrow range of skills and can spend less time organizing and coordinating personnel
- More stable.

The disadvantages are that functional organizations:

- Require greater management involvement in decision making because lower-level functional managers are not able to see the "big picture." As a result, decisions often become convoluted as they travel up and then back down the chain of command, requiring more time to resolve problems.
- Are larger, more complex, and cumbersome. The larger functional organizations get, the more oversight is needed to accomplish the mission objectives.
- Make it harder to trace accountability.
- Fail to develop well-rounded managers.
- Are resistant to adaptation.
- Create turf battles and foster the "we versus they" mindset, diminishing mission focus.

Project Structure

Project departmentalization means that jobs are grouped along project or service lines (e.g., service order shop, job order shop, engineering project management). The advantages to structuring along project lines include:

- More responsiveness to customer needs.
- More adaptation to experimentation, new ideas, and change.
- Personnel better understand the organization's mission and objectives.
- Decision authority is moved down to the project shops, therefore permitting performance accountability.
- Positive competition among the functions is encouraged.
- Job scopes are broader, resulting in more satisfying work.

The disadvantages of project departmentalization include:

- Duplication of work efforts because two or more shops may have personnel doing the same type of work.
- Mission success is more dependent on lower-level managers.
- Less cost effective.

- More upper management effort is required to coordinate the project functions.
- Reduction or elimination of job specializations.

As this information suggests, pure functional and project organizations are diametrically opposing concepts. Neither concept can fully satisfy all requirements of an organization. However, the two are not mutually exclusive, and benefits can be realized if tradeoffs and compromises are made by using a combination of both. What is most important is that the organization be structured to meet its mission and objectives.

As an example, a project organization structure can superimpose a functional structure for accomplishing any number or variety of projects. In other words, project teams can be conceived from a functional department's personnel (each with different skill areas) for the purpose of accomplishing a project. Project or team leaders are generally assigned lead responsibility through the duration of the project. These teams can contain a permanent nucleus, or the composition can change entirely from project to project. Individuals may move between teams or projects or belong to a number of teams simultaneously.

The concept described above is typically called matrix design. Using this concept is advantageous when the organization performs a large number of complex and interdependent tasks or projects. The matrix organizational design can capture the advantages of both the functional and project concepts while minimizing the negative aspects of the organization, allowing it to perform more efficiently.

CHAIN OF COMMAND

The concept of chain of command says that authority flows down organizational levels (normally a hierarchical structure) one at a time. Well-defined links between managers and their subordinates define the hierarchical structure and delineate who reports to whom. They result in better communication, more defined decision making, and a more effective organization. In addition, subordinates are protected from higher authority. Without a chain of command, there would be unsystematic decision making, and the organization would be engulfed in constant chaos. In principle, this concept implies that subordinates should be supervised by only one person with authority over his/her job. Otherwise, the subordinate may be faced with

uncomfortable situations and conflict of loyalty where two managers give conflicting orders.

Oftentimes, organizations experience a hidden or "informal" chain of command where the actual lines of authority and/or communication are different from those suggested by the organization's structure lines. For example, a subordinate's primary responsibility may be to a manager in another department, or to a manager one or two levels above his immediate supervisor, and so authority and communication between the two become strained and confusing. This situation should be avoided whenever possible to preclude these obstacles.

SPAN OF CONTROL

Span of control measures the number of subordinates reporting directly to a manager. Over the years, numerous studies have defined the optimum number of subordinates under a manager's control to maximize organizational effectiveness. The studies recommend that no more than six to eight subordinates be placed under a single manager. Several criteria affect a manager's optimum span of control. They include the size of the reporting departments, the level of interaction between the manager and subordinates, and the level of effort required to manage the subordinates. Too broad a span of control is evident when managers are beleaguered and subordinates are discouraged, and too narrow a span of control is evident when subordinates are beleaguered and managers are discouraged.

DECENTRALIZATION VERSUS CENTRALIZATION

Decentralization refers to the degree to which decision-making authority and operational responsibility are delegated to lower managers. "Decentralization" exists when decision authority and operational responsibility are moved to lower-level management (known as vertical decentralization), and "centralization" exists when decision authority and operational responsibility are retained by uppermost management. The concept of decentralization relies on the basic assumption that the lower-level managers are responsible, capable, and qualified to make decisions.

These are, of course, two opposing concepts, and the difficult decision to adopt either should be based on the following factors:

- *Organizational growth* – When organizations are in a growth phase, it is difficult for upper management to fully comprehend situations and problems at the lower levels. It is therefore imperative that upper management relinquish decision-making authority to a level of management that is able to fully comprehend the day-to-day circumstances on which particular decisions are based.
- *Expertise* – Decision-making authority must reside with the managers possessing the requisite expertise. Decentralization is necessary when that expertise or knowledge is not available to uppermost management.
- *External conditions* – When external conditions affecting an organization increase and become more complex, upper-level managers are usually unable to make informed decisions because they are generally far removed from the sources of commotion. Decentralization gives those managers closest to the problems the decision authority.
- *Cost and risk* – When the consequence of poor lower-management decisions carry high cost or significant organizational impact, then centralized management should be considered.

Organizations that decentralize operations and decision making must centralize control of policy and objectives if the organization is going to remain prosperous. In other words, for decentralization to be successful, upper management must set the policy and objective goals, monitor the individual organization's performance so that it knows when the objectives are being reached, and provide procedural guidance when goals are not attained. Centralized control can take on several forms, including common master or project planning, centralized programming and budgeting, and/or measurement by standard objectives. Centralized control does not mean control over decision making or day-to-day operations. However, guidance in these areas can certainly be passed down functional lines of communication when and where appropriate.

It is important that, whenever an organization decentralizes and creates autonomous organizations, it not use a cookie-cutter approach to designing its autonomous organizations. It is desirable to set up similar functions within each organization, but not to the extent that they become total' uniform. Uniformity

may preclude the autonomous organizations from reacting effectively to their external environment because of the limitations imposed by the structure.

APPENDIX C

EXAMPLES OF FINDINGS FROM INSTALLATION VISITS

EXAMPLES OF FINDINGS FROM INSTALLATION VISITS

TABLE C-1
INSTALLATIONS VISITED

Installation	MACOM	Type of DEH organization
Aberdeen Proving Ground	AMC	MEO
Fort Benning	TRADOC	MEO
Fort Bragg	FORSCOM	MEO
Fort Carson	FORSCOM	CA
Fort Knox	TRADOC	MEO
Fort Leonard Wood	TRADOC	CA
Fort McClellan	TRADOC	CA
Fort Ord	FORSCOM	MEO
Fort Riley	FORSCOM	MEO, not fully developed
Fort Sill	TRADOC	Reorganizing into MEO
Picatinny Arsenal	AMC	MEO
White Sands Missile Range	AMC	MEO

Note: MACOM - major command; DEH - Directorate of Engineering and Housing; AMC - U.S. Army Materiel Command; MEO - most efficient organization; TRADOC - U.S. Army Training and Doctrine Command; FORSCOM - U.S. Army Forces Command; CA - commercial activity

TABLE C-2

INSTALLATIONS WITH A CONSOLIDATED OPERATIONS AND MAINTENANCE (O&M) FUNCTION

Installation	Installation's comments
Aberdeen Proving Ground	-
Fort Benning	-
Fort Bragg	Span of control too great without intermediate supervisors.
Fort Carson	Had the function even before going CA.
Fort Knox	Span of control too great without intermediate supervisors.
Fort Ord	-
Fort Riley	-
Fort Sill	-
Picatinny Arsenal	Thinking of splitting function because of span of control.
White Sands Missile Range	Helps to prevent work duplication

TABLE C-3

PROJECT ORGANIZATION IN O&M

Installation	Installation's comments
Fort Carson	Used concept before going CA. Huge improvement.
Fort Knox	Have an IJO shop but got rid of SO shop.
Fort McClellan	CA uses it, but too rigidly enforced.
Fort Ord	Repair (SOs), utilities, construction (IJO) branches.
Fort Riley	Tried it once, but supply lead times prevented IJO backlog from coming down.
White Sands Missile Range	SO shop.

Note: IJO - individual job order, SO - service order

TABLE C-4
MULTISKILLED WORKER CONCEPT

Installations in favor	Installation's comments
Aberdeen Proving Ground	-
Fort Benning	-
Fort Bragg	Have in do-it-now (DIN) shop.
Fort Knox	Difficult to find right people.
Fort Ord	Have in repair shop.
Fort Riley	CPO downgraded multiskilled position.
Fort Sill	Multiskilled workers must be WG-7 or WG-8.
Picatinny Arsenal	-

Note: CPO - Civilian Personnel Office

TABLE C-5
WORK PROCESSING UNDER O&M

Planning and estimating under O&M	Scheduling under O&M
Fort Benning	Fort Benning
Fort Ord	Fort Ord
Fort Sill	Fort Sill
White Sands Missile Range	White Sands Missile Range
	Fort Riley

TABLE C-6

CONSOLIDATED BUDGET FUNCTION

Installations with	Installations without
Fort Benning Fort Bragg Fort Carson Fort Knox Fort Leonard Wood Fort McClellan Fort Ord Fort Sill	Aberdeen Proving Ground^a Fort Riley Picatinny Arsenal White Sands Missile Range^b

^a Thinking about implementing the concept

^b Was consolidated but recently created an AFH budget office

TABLE C-7

BUDGET FUNCTIONS UNDER DIRECTOR

Installations with	Installations without	Installation's comments
Fort Bragg	-	Director went straight to budget anyway.
Fort Carson	-	Director went straight to budget anyway.
Fort Leonard Wood	-	Director wants to keep his "finger on the pulse."
White Sands Missile Range	-	-
-	Aberdeen Proving Ground	Thinking about the concept.
-	Fort Benning	Formerly used the concept.
-	Fort Knox	-
-	Fort McClellan	-
-	Fort Ord	-
-	Fort Riley	-
-	Fort Sill	Director goes straight to budget.
-	Picatinny Arsenal	-

TABLE C-8

INSTALLATIONS WITH COMBINED MASTER PLANNING AND REAL PROPERTY

Installation	Installation's comments
Fort Bragg	Planning division formed to avoid work duplication.
Fort Carson	-
Fort Knox	-
Fort Ord	Has a Planning division.
Fort Sill	-
Picatinny Arsenal	-

TABLE C-9

IPB INVOLVEMENT

Installation	Installation's comments
Aberdeen Proving Ground	Meets annually, but a working IPB meets quarterly.
Fort Bragg	Meets annually.
Fort Carson	Meets semiannually for MCA only.
Fort McClellan	Meets quarterly.
Fort Riley	Meets annually for MCA and siting only.
Fort Sill	Meets annually for OMA, M&R, and some IJOs.
White Sands Missile Range	None.

Note: IPB - Installation Planning Board; MCA - military construction, Army; M&R - maintenance and repair

TABLE C-10

INSTALLATIONS BELIEVING WORK DUPLICATION DEFINITELY NOT A SIGNIFICANT PROBLEM

Installation	Installation's comments
Fort Bragg	Planning Division helps to stop duplications.
Fort Carson	Combining ERMD and EPSD reduced duplication; also a well-developed local routing slip.
Fort Ord	Planning Division helps to stop duplications.
Fort Riley	EPSD attends weekly scheduling meeting.
Fort Sill	EPSD attends weekly scheduling meeting.
Picatinny Arsenal	Projects grouped by location. Easier to find overlap.
White Sands Missile Range	Combining B&G and utilities reduced duplications.

Note: ERMD—Engineering Resources Management Division; EPSD—Engineering, Plans, and Services Division; B&G—Buildings and Grounds.